

In This Issue—*New York Show*

JAN 17 1921

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# MOTOR AGE

Volume XXXIX  
Number 2

PUBLISHED WEEKLY AT THE MALLERS BUILDING  
CHICAGO, JANUARY 13, 1921

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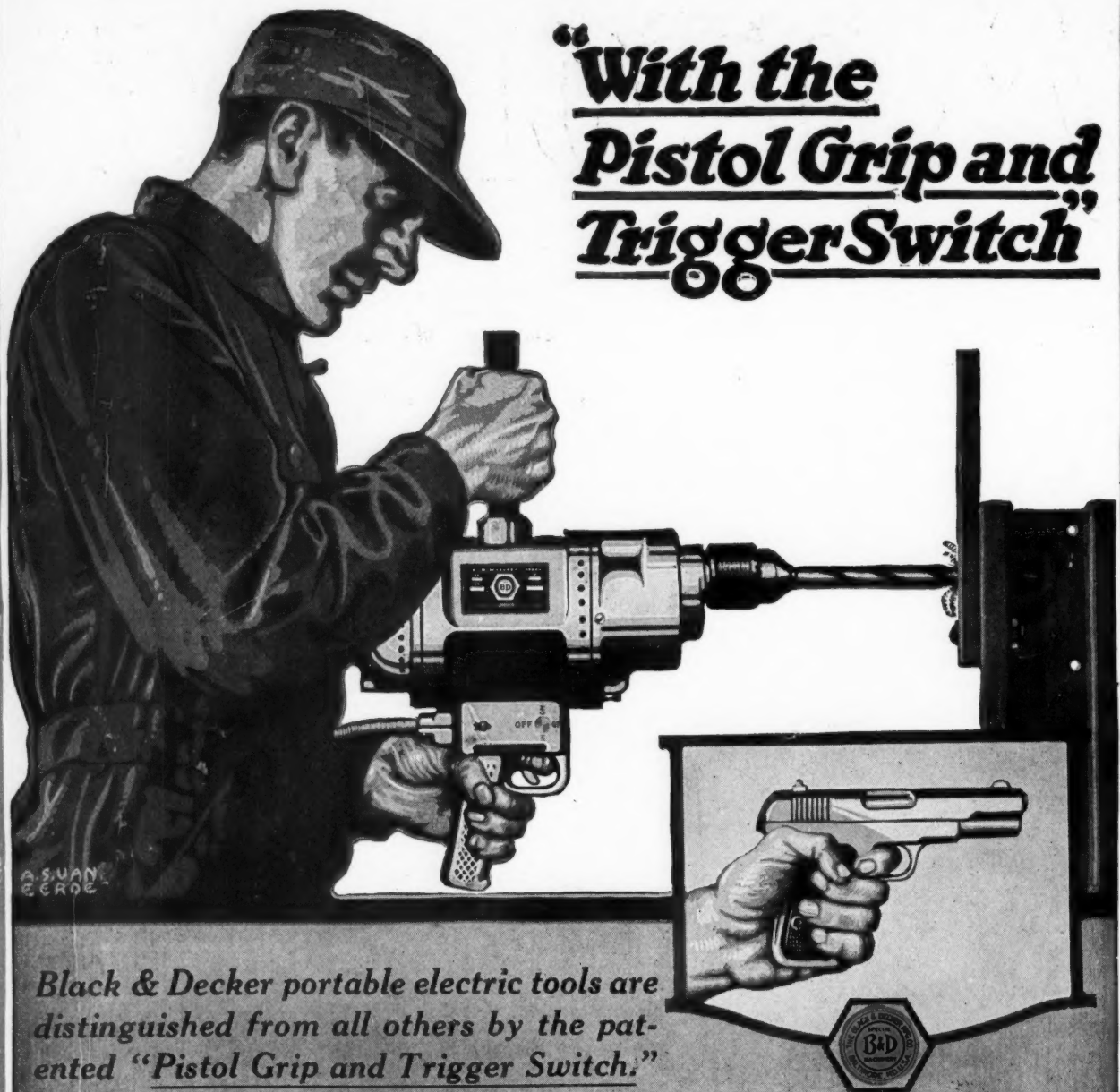
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# MOTOR AGE

Published Every Thursday by

THE CLASS JOURNAL COMPANY

MALLERS BUILDING

59 East Madison Street, CHICAGO

HORACE M. SWETLAND, Pres.

W. I. RALPH, Vice-Pres.

E. M. COREY, Treas.

A. B. SWETLAND, Gen. Mgr.

Member Audit Bureau of Circulations; Member Assoc. Business Papers, Inc.

Vol. XXXIX.

January 13, 1921

No. 2

## CONTENTS

The Spirit of Do-Things.....	7
<i>Why the Automotive Industry is a leader in the business world.</i>	
They're Off for 1921.....	8
<i>A full report of the opening of the New York Show at Grand Central Palace.</i>	
Scope of New York Exhibit Indicates Show Trend.....	11
<i>A comparison of the 1921 show with its predecessors.</i>	
They Say—.....	12
<i>The trend of thought of the industry's leaders attending the show.</i>	
The New Cars.....	14
<i>Descriptions and illustrations of the new models at the New York display.</i>	
Saving Service Dollars in 1921.....	21
<i>What the engineer has done by way of facilitating service on this year's models.</i>	

## NEWS OF THE INDUSTRY

Parts Makers See Progressive Return to Normal.....	26
Ten Million Dollar Company Formed to Finance Trucks.....	26
Show and Convention to Bring Milwaukee Dealers In.....	27
Cleveland Optimism Shown by Building Growth.....	27
Close Co-Operation Between Maker and Dealer Necessary.....	28
Nearly 50 Per Cent of Car Sales on Time.....	28
Service Must Predominate Says Reeves.....	29
Higher Taxes Recommended for Road Maintenance.....	29
Akron Starts Year With Big Orders on Books.....	30
Considering Several Plans for Goodyear Readjustment.....	31
Enforcement of Weight Limit Ruling Stopped.....	31
Change Fire and Theft Rates in Middle West.....	32
N. A. D. A. to Hear "Master Address" by C. W. Nash.....	32

## Departments

Automotive Architecture.....	36
The Readers' Clearing House.....	38
The Accessory Show Case.....	44
Service Equipment.....	45
Weekly Wiring Chart.....	46
Truck Gear Ratios Data Sheet.....	47
Radiators on 1920 Cars Data.....	47
The Automotive Repair Shop.....	48
Law in Your Business.....	49
From the Four Winds.....	50

## MOTOR AGE

MALLERS BUILDING  
CHICAGOPhone Randolph 6960  
Cable Address "Motage"

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CLEVELAND, 536-540 Guardian Bldg., Main 6432

NEW YORK CITY, U. P. C. Bldg., 239 W. 39th St.

Phone Bryant 8760

PHILADELPHIA, Widener Bldg., Phone Locust 342-343

### SUBSCRIPTION RATES

United States, Mexico and U. S. Possessions.....	\$ 5.00 per year
Canada.....	7.00 per year
All Other Countries in Postal Union.....	10.00 per year
Single Copies.....	35 cents

Make Checks Payable to Motor Age

Entered as second-class matter, September 19, 1899, at the Post Office, Chicago, Illinois, under Act of March 3, 1879.

Owned by UNITED PUBLISHERS CORPORATION, 239 W. 39th St., New York, H. M. Swetland, Pres.; Charles S. Phillips, Vice-Pres.; A. C. Pearson, Treas.; Fritz J. Frank, Sec.

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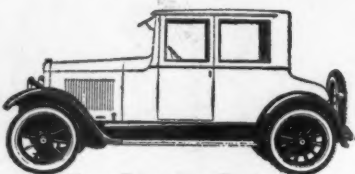
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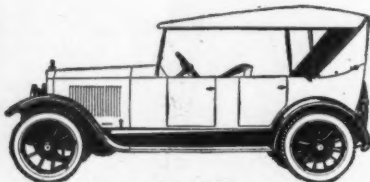
## At the Shows



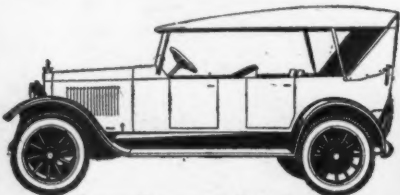
Five-Passenger Sedan



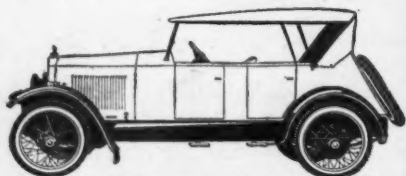
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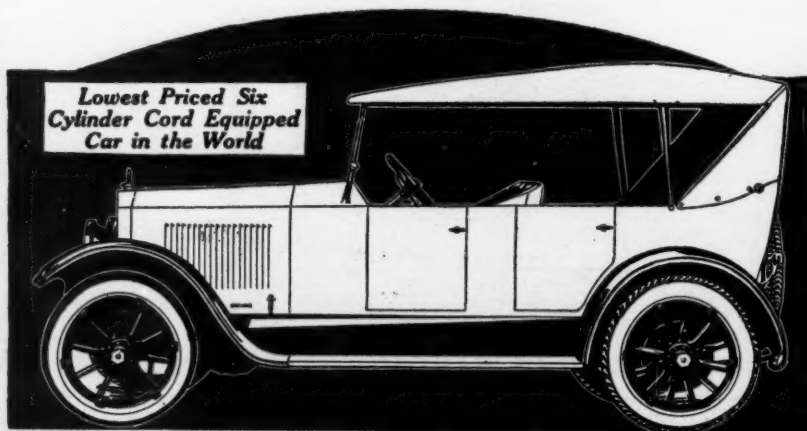
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# MOTOR AGE

## *The New York Automobile Show*

### *The Spirit of Do-Things*

**W**HEN a man is a man who does things that can't be done he becomes a leader in any field in which he works.

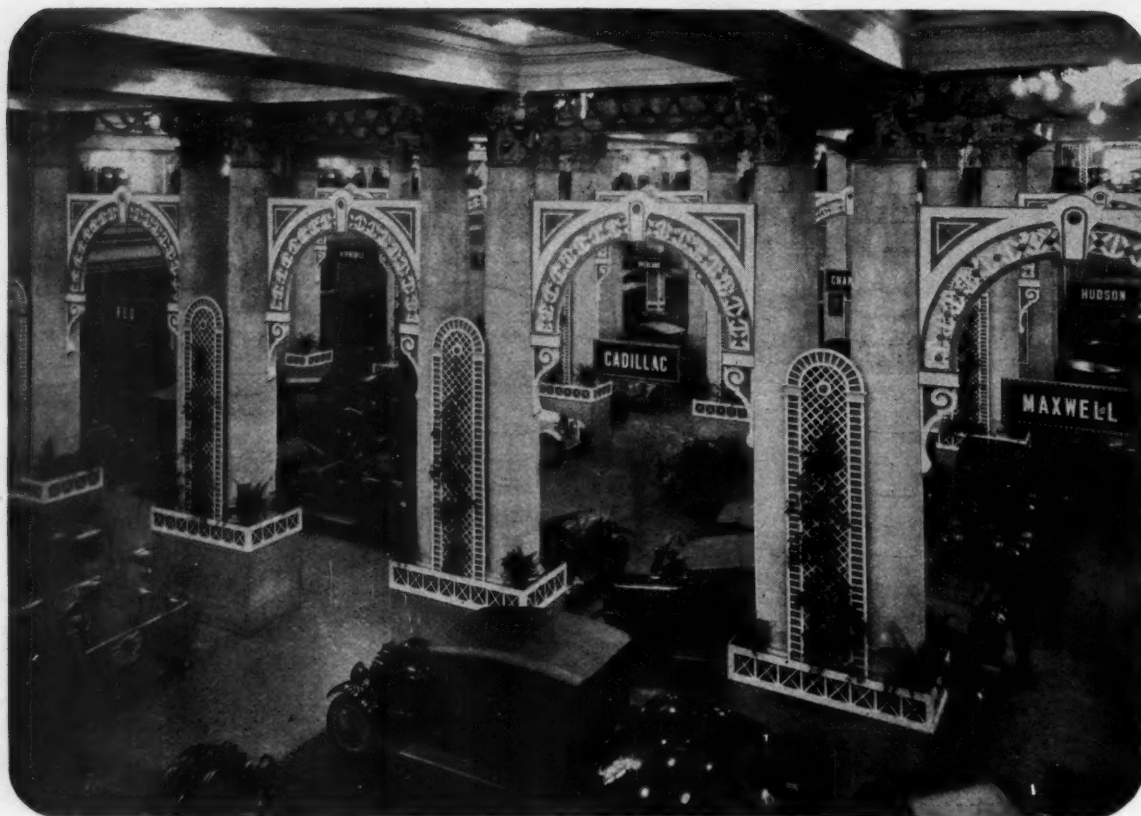
Industries are like men. They have habits and character and careers. And the industry which does things that can't be done becomes a leader in the world of business.

For more than thirty years the automobile industry has been doing the thing that couldn't be done. It is still doing it—in the show that is being held this week in Grand Central Palace in New York—the 21st annual.

The thing that can't be done at this particular time is to make a slowed-down business start NOW instead of later on, when the "waiters" expect it will "come back normally."

The Spirit of the Automobile Industry can be felt as a mighty force throughout the show. It is worth much to walk through the show and feel the mighty force that lies back of it. It is inspiring to feel a great industry asserting that it is going to do the thing that can't be done. It makes one feel that he is going to follow this Spirit of Do-Things and be worthy of a part in the greatest industry in the world.

# They're Off for 1921



How the main floor of the Grand Central Palace looks from the balcony

By **DAVID BEECROFT**

**G**RAND CENTRAL PALACE, New York, Jan. 8—Never before in the history of the motor car industry has the opening of a show been looked forward to with greater interest than that of the twenty-first annual show which opened in Grand Central Palace at two o'clock this afternoon. For weeks, in fact, for several months the word on every lip has been "wait for the opening of the show circuit at New York." Well that opening took place this afternoon and evening, three or four Gotham hotels also lending assistance by housing nearly a dozen crowded-out exhibits.

The crowd today was not so great as a year ago, despite the fact that Saturday at a New York show is generally a paper day. The crowds did not pack the aisles and exhibit spaces, but they did comfortably fill and spread over the four large floors of Grand Central Palace that are given over to the show. The two lower floors and part of the third are filled with cars and the major part of the third and the fourth are given over to accessories and a small sprinkling of parts.

When the doors opened there was a lineup on the sidewalk a couple hundred feet in length. Fifteen minutes after the show was opened the crowd was filling the four floors, the elevator plan of carrying you to the fourth floor without a stop so you have to walk down to the ground floor proving as formerly a commendable one. The crowd was perhaps 60 per cent of former years, but in the afternoon in particular it was a good crowd. Half of them could be seen buying admission



tickets. It was not all a free-pass afternoon. The calibre of people was above the average for a Saturday afternoon. They were much interested in cars and during the afternoon we saw one of two checks in payment for cars. In the evening the crowd was more of a Saturday night crowd, and was not a very strong buying aggregation. It never is. It might be described as a shopping crowd, men with their wives who want to look over all the cars and see just what they are like and what improvements have been made.

In nearly every exhibit space salesmen were taking the names of new prospects and many business cards were being exchanged. There was no landslide at buying but there was



every indication that some good business may be done before the week is over. The New York show never is a great retail selling show. It comes too early in January for that and retail sales are never made in the quantity that they are at the Boston show held in March and immediately before the opening of the selling season. If today's opening were to be taken as any indication of what may be expected from the show circuit we would say that the shows are going to start business and that buyers are interested. There is not going to be any stampede and those who sell cars must use good merchandising.

There was practically no talk among buyers regarding price reduction, as salesmen in several booths expressed themselves as not having had that question asked during the afternoon or evening. Two or three reductions and two or three increases were announced today. It will only be later in the week that the real estimate of the show can be had but *MOTOR AGE* goes to press too early for that and the final verdict cannot be written until next week.

As a show it is a good one, and practically a duplicate of last year's show. It is a co-incidence that the number of exhibitors is the same as last year, namely, 307. This is not the biggest show held in New York; as far back as 1913 there was a show with a total of 424 exhibitors. It is a much larger show than that held in 1919 following the armistice.

As an exhibit of cars it is a most creditable one, there being more color in bodies than has been seen for many years, and the makers have endeavored to fix the cars up more than usual by use of disk wheels, wings on the wind shields, bright colors and nickled radiators. The 56 cars and chassis with disk wheels indicates how this movement is growing, but artillery wheels still hold the leading position being on 215 vehicles exhibited and wire wheels are on 70.

#### FOUR CYLINDER CARS GAIN

The use of chassis in exhibit spaces is not strong as many years ago but the magnetism of a well finished polished chassis remains and around every one of the 38 chassis on exhibition was a studying crowd most of the afternoon and evening. Chassis of such new cars as the LaFayette, Lincoln, and the new Pierce-Arrow were surrounded from opening until closing. Such established makers as Locomobile include a chassis in the exhibit space. There are not so many sectional engines or chassis as formerly, but Buick, Willys-Knight and others with them were well repaid for the effort by the analyzing crowds.

An unusual exhibit and one that is attracting continuous attention is the Marmonettes, a group of miniature Marmon models that are exact duplicates of the large cars in every respect excepting not having an engine, clutch or gearbox. These models built to blue print and of one-quarter size have frames formed from dies, die-made fenders and axles, pneumatic tires, and the bodies are finished in every respect as are the large cars. There is a Marmonette for each Marmon model. These mounted on pedestals were surrounded all the time. Their perfection of execution is what adds to their attraction. They are literally Marmon cars as you would see them if looking through the wrong end of a pair of field glasses.

There are not many unusual exhibit features in the show by way of exhibits. The show management has apparently eased up a little from its grip of former years by allowing price tags to be hung on several of the cars and there are a few other tags showing cars that have already been sold.

An unusual fact is the gain in the number of four-cylinder cars and a little dropping off in the number of six-cylinder jobs. There are fifteen more fours than two years ago and twenty fewer sixes than at that time.

The show, if we consider the exhibits at three hotels, consists of an engine division as follows:

Six-cylinder engines .....	219
Four-cylinder engines .....	100
Eight-cylinder engines .....	38
Twelve-cylinder engines .....	3

Both of the air-cooled exhibitors, Franklin and Holmes, show new body designs with imitation radiator effects, the new hoods being interchangeable with the hoods of last year. The Franklin radiator effect, which is a metal screen, slopes slightly to the rear at the top.

In a classification of the bodies the opening touring car with

capacity for five, six or seven passengers is still a leader over all other designs but the sedan has made good gains as indicative of its popularity. Here are some figures:

#### VEHICLES EXHIBITED

Open touring cars.....	195
Roadsters .....	40
Sedans .....	80
Coupes .....	23
Limousines, etc. ....	27

Windshield vizors of either frosted glass or leather have not made the progress during the year that they merit. For driving into the sun nothing is more useful and in rain storms the vizor is practically equally as useful as the windshield with the double upper glass.

Glass windshield wings first seen at a New York show this year, but which have been used in great quantities in Southern California for several years, are attracting a great deal of attention, and the salesman generally starts the conversation by referring to them and explaining their use. The East as well as the Central West will experience an invasion of them as it will soon be discovered how much they add to the comfort of motoring even in the front seat, especially with the narrow windshields which are so necessary with present body designs. These wings are generally of two designs, one in which the glass is held in two slides one at the top and the other at the bottom and the other in which the glass is held by a couple of bolts which pass through holes drilled in it. Some body designers have always kept away from drilling holes in glass plates, but this design has the advantage of not having so elaborate a supporting framework of metal parts as that in which the glass is held in top and bottom slides. Care must be exercised not to interfere with the driver's vision and there is some danger of this with a few designs. It is just adding to the blind spot which is a dangerous factor in any car. The glass wings or plates are generally oblong, made of good thick glass and with attachment devices that readily admit of fastening to the upright end support or frame of the windshield.

Tonneau windshields are about as scarce as they were ten years ago. This very necessary part of a car body has never made progress and it still remains practically a disgrace on our modern touring car that mother and the children take the bumps and wind of the back seat while father, brother or the chauffeur gets the easy riding of the front seat well ensconced behind a windshield and now further favored with protecting wings.

#### MORE CALIFORNIA TOPS SEEN

The tonneau windshield is generally very expensive, is heavy and when it is supported from the back of the front seat it is difficult to support so as not to have rattling. For a time the divided front seats with the aisle between made this type of tonneau shield impossible and today the more general use of the sedan has given it another setback. There is a market for a good one and some practical inventor will some day give us one that will be a winner. It may have to be supported from the sides of the body, perhaps near where the auxiliary seats are attached and may be in halves to admit of easy ingress and egress.

Another Californian invention that is gaining in eastern favor and is seen at the show in half a dozen or more examples is the California top, which is taking the place of the winter top of some years ago. There are three or four good examples of it. This top has a permanent top similar in lines to any conventional one-man design but heavier. At each end of the back seat is a permanent side part generally carrying a circular or oval glass window. This is also permanent. The removable parts are confined to the sides which are in three parts, all well provided with glass windows. There is an upper half to both front and rear doors, which can be taken off in summer and also an end part for the front seat. When these are removed for summer use conventional light side curtains may be used. The leading objection to these tops at present and which stands in the way of rapid introduction is the cost, a top of this character adding in several cases \$500 to the list price of the car. In these tops as with sedans we must make greater efforts to reduce the cost.

The body styles of the show indicate a slow but almost certain trend from the straight edge body with a bevel along the

top of the sides to a rounded edge. This must not be confounded with the straight-line feature of design which may be present whether the top of the body sides is finished with a bevel edge or with a rounded one. With body styles it is very largely a swing of the pendulum, to and fro. It swung to the bevelled edge and now the swing away from it is beginning.

Generally the swing away from any style to another is due to many makers not having handled the bevelled edge in a good way. The jobs are poorly done. When this happens the good designer is compelled to shift to another design, and here let it be understood that a good designer can make an artistic body with either the bevel or the rounded, the success depending on the skill and knowledge of the designer. It is unfortunately a fact that there are too many cases of the bevelled edge that is horribly poorly executed. The styles in a few instances are nothing short of being disgraceful. The general design was poor to start with and then the execution of it was equally poor. This is why the rounded top edge is returning.

#### GOOD MERCHANDISING IN EVIDENCE

In body design too often people with no knowledge of the designing art attempt the job. They can get away with this because whether the lines of a body are good or bad it does not interfere with the running of the engine, the efficiency of the brakes or the general performance of the car. Because of this the amateur body designer can get away with murder. He could not attempt to design a clutch, a set of brakes or electric apparatus but he can array some front seats, rear seats and sides and the total is a body that may violate nearly every rule of the designer's art. This could be gotten away with in the old days when demand exceeded supply but with having to sell cars the buyer is going to be more fastidious and the poorly designed body will offer sales resistance.

Never before has New York staged a show with such an effort to doll up the old jobs. There is more color than ever seen at a previous show, and while many are described as show jobs still the need of sales is resulting in them being offered at no extra cost when the money is offered. It is the buyer's turn now and he is going to exercise his right of getting a little color into the job when he has to pay present prices. Generally the colors are not so formidable or impractical as a few years ago. There are not so many bridal chamber effects. You do not see any signs of "hands off" or "do not touch." There are not so many doors on sedans and limousines locked as a few years ago. It is a selling show. Light yellows, cream shades, reds, blues and a few greens are the dominating shades, to which should be added some browns. Blacks still dominate.

There is a decided trend to the nicked radiator taking the place of the plain black enamelled types we have had to like for so many years. A well designed radiator adds real fashion to a car. The nicked radiator has a richness that is worth while. The rounded radiator frame is gaining on the straight line, and properly so as it is easier to design a shape that corresponds with the rounded body lines. A poor designer can accomplish much better results with rounded effects in body and radiator than with straight edges. An artist of the highest order is needed to get the best results out of the straight edge. In radiators it is becoming more general to remember that best results are obtained when the top of the radiator is slightly

narrower than the bottom and when the radiator is not square but slightly higher than it is wide.

A touch of good merchandising is noted that in the dolling up of bodies the more sporty types have received most attention and styles like sedans which sell anyway have not received much attention. The colors are more general on runabouts and touring cars. Runabouts are generally more sensible than they were a year ago in that the rear deck has a carrying compartment with real capacity and doors that are adequate to put luggage in or take it out. The folding seat in connection with the rear deck is not seen very much.

Disk wheels are very much in evidence as compared with last year, but in nearly every case they are not stock equipment but are extras to the tune of \$90 to \$150. These wheels are seen on many jobs but the artillery wheel still has a strong lead. Practically every high priced car such as Packard, Lafayette, Pierce, Locomobile and Lincoln shows artillery wheels. There are seven different makes of disk wheels some of which are cast aluminum, others sheet steel and one made up of seven or nine layers of wood, constituting a plywood construction. There are 215 cars of the 332 vehicles on exhibition in the city fitted with artillery wheels; 70 fitted with wire wheels; and 56 fitted with disk designs. In not a few cases the disk designs are used to doll up the jobs, but while this is the present situation there is a strong sentiment among body designers that the disk wheel is a coming feature.

#### SOME DISK WHEELS DEMOUNTABLE

Some of these disk wheels are demountable at the hub and must be classed as a demountable wheel whereas others are not demountable at the hub but carry a demountable rim. There are others that are not demountable at the hub, do not carry a demountable rim but carry a quick-detachable ring to permit of easy removal of the tire.

The disk wheel is a good looking added feature if it is well painted, and art is needed in this work. Some of them are like rifle targets and others are not painted to harmonize with the car.

Some of the demountable wheels at the show are Disteel, Budd which is the French Michelin, Harvey, Chicago and the Aluminum Casting Co. Some wheels that are not demountable at the hub but have either demountable or Q D rims are Parker, Dayton wood fibre and one model of the Harvey.

The great aim in a wheel is to have a light periphery, an aim the European manufacturer has always aimed for. The European has never been a strong advocate of the demountable rim, or even the Q D rim, preferring the old clincher design. The demountable rim adds materially to the peripheral weight which naturally slows up acceleration and deceleration of a car. The heavy peripheral weight of a motor car wheel is like the heavy rim on a flywheel. It is hard to start and to stop. In the days of yesterday when tires gave so much trouble there was real need for the demountable rim and the Q D as well but today with cord tires that are giving such amazing wear not a few engineers are wondering if they have not gone too far in adding to the peripheral weight of the wheel by demountable rim features. There are not nearly so many tire changes as there used to be.

*January 27, 1921, is the date of*  
*The Annual Show Issue and Specification Number of*  
**MOTOR AGE**

Old time members of the MOTOR AGE Family call it the banner number of the year. New members will find it a veritable encyclopedia of data, illustrations, etc., of practically everything offered in the way of new vehicles and new models for 1921.

**WATCH FOR IT!**



# Scope of New York Exhibit Indicates Show Trend

**D**ESPITE various differences in engineering and merchandising features, the outstanding statistical fact of the 1921 New York show is its similarity to the 1920 exhibit.

Exactly the same number of exhibitors were represented, although the ratio between accessories and car exhibitors changed slightly. Of the 307 exhibitors in 1920, only 81 presented cars, while this year there are 86 different car exhibits. Seven more cars are shown than last year.

Three electric cars are represented by seven models, while one steam car is shown. One of the electric cars exhibits a stripped chassis.

The sharpest change in statistics is noted in the relative number of four-cylinder and six-cylinder models shown. In the four-cylinder models there is an increase of 15 over last year, while a decrease of 20 in the number of six-cylinder models appears.

These statistics are especially interesting, since an analysis of the figures for past years shows an almost continuous increase in the proportion of six-cylinder models shown each year since 1914, and an almost proportionate decrease in the four-cylinder type. The six-cylinder type comprises about 62 per cent of the total, however, and so must still be considered as the dominating model.

There are 31 eight-cylinder cars shown as against 29 last year, the change being so slight as to indicate merely that this type is holding its own. There are but three 12-cylinder cars shown this year, all by the same exhibitor.

Only two exhibitors show air-cooled cars, the total cars of this type being seven. There are 12 sleeve-valve motors, the other 321 being tappet valve types.

The L-head type of valve placement is numerically the largest with 180, being

followed by the valve-in-head type with 119.

The 4-5 passenger touring car is the most popular of the open models, while the increasing popularity of the sedan is indicated by the fact that 80 models of this kind are shown. Thus two-thirds of the closed models exhibited are of the sedan type.

Despite a goodly number of disk and wire wheels, artillery wheels, usually of wood, are used on 63 per cent of the cars exhibited.

Several features which appeared in past years, are no longer found even in small numbers, at this year's show. The

two cylinder car, which appeared for a brief space in 1914, is missing, while the last motorcycle exhibit has apparently disappeared from the automobile show. In 1920 one motorcycle was shown, but this year no exhibit of this kind is to be found.

As usual a number of exhibits are being shown in the hotels, but the statistics concerning these cars follow out very closely the general trend indicated by the figures on the show itself. There are 19 cars in the outside exhibits, 12 of which are four-cylinder jobs, 4 are six-cylinder, and 3 are eight cylinder. The sedan dominates in the closed-body field of this group as well.

## New York Show Statistics

General Statistics	1913	1914	1915	1916	1917	1918	1919	1920	1921
Total Exhibitors.....	424	349	317	319	323	331	198	307	307
Car Exhibitors.....	89	78	80	84	95	79	56	81	86
Gasoline.....									83
Electric.....									3
Accessory Exhibitors....	320	259	223	306	227	252	141	225	221
Cars Exhibited.....	276	269	228	264	282	263	225	334	341
Gasoline.....	226	265	221	251	272	252	223	324	334
Electric.....	10	4	7	13	10	11	2	8	7
Steam.....					2	4	0	2	1
Stripped Chasses Exhibited.....	49	37	51	56	54	34			38
Four-wheel Brake.....									1
<b>Engine Characteristics—Gasoline Cars</b>									
Two-cylinder.....		2							
Four-cylinder.....	229	183	146	158	146	94	40	65	80
Six-cylinder.....	133	131	160	154	161	171	141	223	213
Eight-cylinder.....			8	50	55	40	34	29	31
Twelve-cylinder.....				17	16	9	8	7	3
Air-cooled.....	5	6	3	3					7
Water-cooled.....	261	258	218	248					325
Tappet valve.....	215	254	213	247	270	252			321
Sleeve valve.....	10	10	6	15	2				12
Revolving disk valve.....									1
Valve-in-head.....									119
L-head.....									180
T-head.....									29
<b>Body Styles — Gasoline Cars</b>									
Open cars.....	213	195	175	194	195	175	127	176	163
Roadsters—2-3 pass....	52	51	51	76	68	40			40
Touring cars—4-5 pass..	164	145	129	125	140	143			91
Touring cars—6-7 pass..	164	145	129	125	140	143			32
Enclosed cars.....	53	43	36	28	37	77	79	119	120
Coupes—2-3 pass.....	19	17	7	6	6	13			23
Sedans—4-5 pass.....	2	2	43	2		43			80
Other closed 6-7 pass..	23	16	19	14	19	8			27
<b>Wheel Styles—Gasoline and Electric Cars</b>									
Wire wheels.....									70
Disk wheels.....									56
Artillery wheels.....									215

### HOTEL EXHIBITORS

1921

Total exhibitors.....	13
Cars exhibited (all gasoline).....	19
Stripped chassis exhibited.....	2
Four-cylinder.....	12
Six-cylinder.....	4
Eight-cylinder.....	3
Air-cooled.....	1
Water-cooled.....	18
Tappet valve.....	18
Sleeve valve.....	1
2-3 passenger roadsters.....	3
4-5 passenger touring cars.....	2
6-7 passenger touring cars.....	4
2-3 passenger coupes.....	2
4-5 passenger sedans.....	5
6-7 passenger (other closed cars).....	1
Wire wheels.....	4
Disk wheels.....	4
Wooden wheels.....	11

# THEY SAY—

## *Facts of the Industry as Gathered at the New York Show*

**N**EW YORK, Jan. 10—Prospective purchasers of motor cars apparently are less interested in the subject of prices than they are in quality, workmanship and satisfactory service. Salesmen at the show are not often called upon to undergo heckling about how much their cars cost or what the prospects are for reductions. It is becoming apparent that with the general downward trend of prices for the commodities which make up the everyday budget, persons who own motor cars and who hope to own them will not be deterred from purchasing the car they want by a few dollars more or less.

As a matter of fact, factory representatives and dealers appear to be more interested in prices than do the public. The expectation had become more or less gen-

eral in the trade that drastic changes downward would be announced at the opening of the show. This belief was not well founded. Quite a number of price changes were announced, but there were fully as many which moved up as there were down. In cases where price schedules, were raised, they generally were accompanied by new models or by refinements in the old models which make them more attractive and which justify the additional cost to the purchaser. Companies which guaranteed their prices are standing pat and in several cases the belief is expressed that the guarantees will be extended. In a few instances, however, it is expected reductions will be announced when the guarantees expire.

**E**XCEPT in a few instances, officers of manufacturing companies who are here for the show make no attempt to gloss over the situation. They admit frankly that production at this time is virtually nil and that they are not being overwhelmed with orders. There are heard only a few glowing accounts of factories running in full blast and purchasers falling over each other to get cars. The average production in the industry at this time does not exceed 25 per cent and chances are it is less than that. Fully a quarter of a million workers in passenger car plants are out of work. Most factories, however, have resumed production on a much reduced scale or contemplate doing so in the near future.

In spite of the absence of actual orders, there is manifest everywhere a feeling of confidence in the future. This is not expressed in extravagant claims, but it shines through all the statements of present conditions. The sales manager of nearly every well known company is here, and they say frankly that business is slow at present but they are unanimous in the assertion that a greater willingness on the part of the public to purchase is reported by their dealers in nearly every section of the country. They are agreed that the buyers' strike is being broken gradually.

### No Big Boom the First Quarter

There is no expectation that there will be a big boom in business the first quarter of the year. As a matter of fact, most manufacturers will be well satisfied if they do as much business in the first half of 1921 as they did in the last six months of 1920. It is the general expectation that something like normal will be restored by April 1. All efforts to

### PRICE REVISIONS AND PRICES ON NEW MODELS

#### Decreases

Peerless—4 pass., \$3230 to \$2990; roadster, \$3200 to \$2990.  
Jackson—\$200 on all models except new 4-pass.  
Auburn—\$200 on all models.  
Davis—\$200 to \$290 on open cars; \$390 on enclosed.

#### Increases

Franklin—\$100 on open cars, Jan. 1; \$100 on enclosed cars, Jan. 15.  
Dort—\$130 on new touring and roadster models.  
Vellie—\$325 on new model 48 Sedan, at once; \$100 on new model 34 Touring, Feb. 15.  
Moon—\$200 Model 6-68, \$2685; 6-48, \$2185; enclosed, \$3185. (Moon previously cut \$400.)

#### New Models

Saxon-Duplex—\$1675 on open models; \$2475 on enclosed. This is \$220 less than on former open models, and \$320 on former enclosed.  
Columbia—5-pass. touring, \$1995; coupe, \$2895.  
Haynes—5-pass. touring, \$1985.  
Mitchell—5-pass. touring, \$1995.  
Maibohm—Coupe, \$2395.  
Detroit-Electric—Brougham, \$4000.  
Pilot—5-pass. touring, \$2285.  
An increase of \$200 was practically effected by Dorris through elimination of extra equipment, though refinements were added in construction.

turbed over their inability to get estimates of car production schedules. They say that thus far manufacturers of complete vehicles have been unable to give them any idea of the number they will purchase. For that reason the parts men have been unable to make contracts for supplies of raw materials, but they are hopeful of getting some figures which will be helpful within the next two or three weeks. They are agreed, however, that the general tone of the market is better and say that some orders are being placed. Most of the parts factories which have been down have reopened on a much reduced schedule or are preparing to do so.

The downward trend of prices in the parts field is more marked than in the passenger car end of the industry and numerous reductions have been announced. Out of fifty-two representative accessory exhibitors, thirty-seven, including some of the larger companies, have not made any reduction in their prices. Of the remaining fifteen, twelve exhibitors announced reduction in prices as follows:

Company	Pct. of Reduction
C. Cowles (3 months ago).....	10-40
Light Mfg. & Foundry Co.....	20
Prest-O-Lite Co.....	20-22
Wm. Cramp & Sons.....	20
U. S. L. Corp.....	40
Luthy Storage Battery Co.....	20
Consolidated Utilities Corp.....	20-25
Breeze Metal Hose & Mfg. Co.....	25-33 1/3
Willard Storage Battery Co.....	20
Doehler Die Casting Co.....	15
Superior Lamp Mfg. Co.....	15
Gemco Mfg. Co.....	15

The remaining three exhibitors have nothing to say about prices.

obtain tentative production schedules for the year are futile. Factories expect to be guided by the results of the New York show. Their representatives are gratified at the serious interest displayed in their products and they expect many bona fide orders to result from the show.

Manufacturers of essential parts, here for the exposition, are somewhat per-



These figures show that a reduction in prices has begun. This is particularly true in the case of concerns manufacturing castings, etc., only, rather than assembled jobs, where the cost is more directly affected by the market price of material. However, the twelve price reductions out of fifty-two is probably not representative of general conditions, a much larger percentage of reduction being probable in the near future.

As regards present factory production, the greater number of exhibitors stated their production to be anywhere from ten per cent up to fifty per cent of capacity. Of these the greater number stated their production to be in the neighborhood of 33 1/3 per cent, which would also be a fair average figure for all the exhibitors questioned.

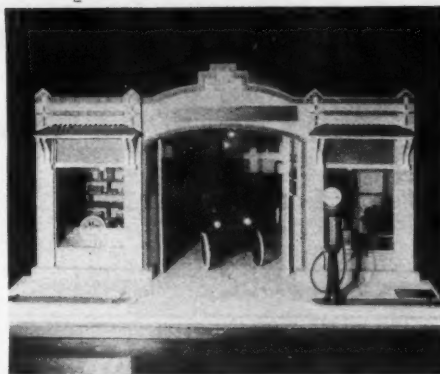
Out of fifty-two representative exhibitors only three, the Giant Grip Co., The Sun Co., and The Biflex Products Co., announced their factories as working at full capacity production.

The number of companies whose present production is down to thirty, forty or fifty per cent announced the probability and in some cases the certainty that their factories would be working to full capacity by March of the present year.

#### Wages to Be Reduced

The question of wages is uppermost in the minds of nearly all the manufacturers. Factories which are operated on a production basis of even 20 or 25 per cent, already have reduced the pay of their workers from 5 to 20 per cent. In nearly every case, these cuts have been accepted willingly and the men at work have shown much greater efficiency than they did at higher wages.

It is apparent that the factory hands realize that their pay must be scaled down along with the cost of living to them. Most operators of factories which



"The Prosperous Garage," another exhibit by the General Electric Co. It is completely equipped with model machinery, tools, etc., and has a glass roof which permits an inspection of the interior

small towns or who produce high quality cars which they say they cannot afford to entrust to any but the most skilled workmen.

While wage cuts have not been so general in garages and service stations, the downward tendency is apparent also in this field and several instances have been reported of reductions. Here also there are reports of greater efficiency and as much work is being turned out by a reduced force.

Both manufacturers and dealers report little actual change as yet in the credit situation. They are hopeful, however, of easier money conditions in the near future and appear little concerned over the possibility of financing the business they expect to get. Manufacturers whose plants are located in the south do not expect any great improvement in the industrial conditions there until the next crop is harvested. They say that there is no real shortage of money, but that cotton, rice and sugar growers who have suffered from the slump in the value of their products feel poor whether they actually are or not. The same conditions prevail in the other great industrial districts of the country.

#### Optimism the Keynote

Taken all in all, the keynote of the New York show is optimism. Manufacturers and dealers came here hopeful that the public would display an increased and serious interest in motor cars and they have not been disappointed. The attendance is fully as large as was expected and there is apparent an actual determination to buy cars either in the near future or as soon as spring weather comes.

New York, Jan. 10.—Production schedules in any factories, large or small, whether located in the Detroit zone or elsewhere, depend entirely upon developments in the next few weeks, and to a considerable extent, on buying tendencies evinced at the show here. Not a factory representative at the New York exhibit could proclaim anything definite in the line of a schedule as the show opened.

Sales managers were a unit in the opinion that production for some time would be entirely on a sales basis. This was emphasized particularly in the higher priced cars such as Lincoln, Locomobile, Mercer, Stutz, Dupont, American, Apperson, Stanley and others.

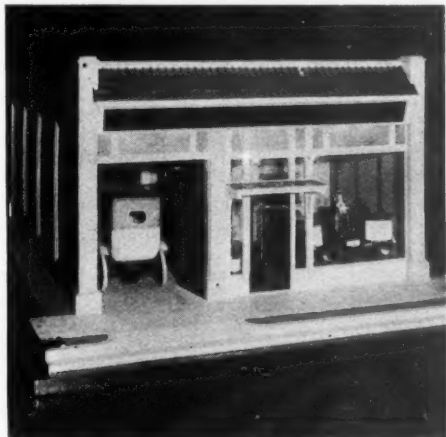
Considerable apprehension was expressed of a too sudden development of business which would catch the factories unprepared to go into capacity production and which might cause again another ascent in prices. With the results of the show here analyzed, however, the factory executives hoped to be able to prepare themselves for early spring developments and meet business without undue delays in deliveries.

Few dealers are stocked to any extent to meet a sudden spring onset of business, the factory men declared, this condition being particularly acute in the middle west and agricultural districts of the country where credits required to carry winter stocks had been withdrawn with the agricultural and transportation crisis of the past summer.

#### Study Demand

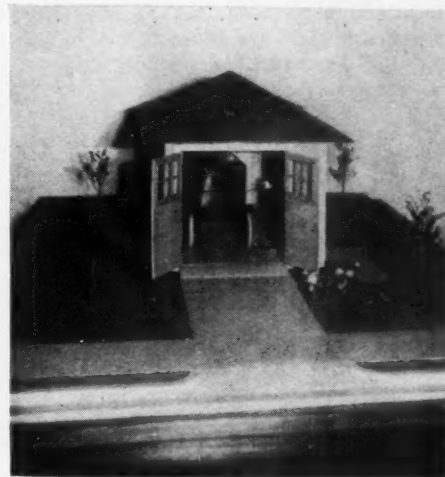
This condition, sales heads were agreed, would bring upon the factories the necessity of getting six months' normal production rushed through in three months. To forestall this, the developments of the show and the general attitude of the public will be scrutinized closely in an attempt to meet the demand at all times with instant deliveries.

Seldom have there been so many factory representatives at a show as are here this year, especially for the opening. It is significant of the trend of the industry that several service managers have stationed themselves at the exhibits of their companies to answer questions and see that nothing goes wrong with the



"Prosperous Battery Station," a miniature exhibit with charging racks, batteries, equipment, etc.

have not yet resumed production say that when their plants reopen, there will be wage cuts. There are a few exceptions to this rule, notably Franklin and Columbia, which say they will not cut factory wage schedules if it can be avoided. The same stand is taken by a few other car makers whose plants are located in



Another "Baby" Display—an up-to-date garage for private use

cars displayed. Engineering departments also are well represented. The salesmen on duty are in most instances under the watchful eyes of factory sales managers. This is a business show and the men from the factories are sticking on the job. They have come for work and not for amusement.

# The NEW CARS

## At Show

Friend

## At Hotels

Navarre  
Kentucky  
Northway

Parenti  
Ace

## New Chassis Models

R & V Knight Model J, 4 cylinder.  
Oldsmobile Light 8.  
Fiat 501, 4 cylinder.  
Fiat 510, 6 cylinder.  
Fiat 505, 4 cylinder.

## New Body Models

Templar 3 passenger coupe.  
Anderson 2 passenger speedster,  
\$2195.  
Kissel coach sedan.  
Kissel tourster.  
Kissel speedster.  
Davis Special roadster, \$2150.  
Westcott coupe, \$3390.  
Elgin coupe, \$2685.  
Monroe coupe, \$2500.  
Monroe sedan, \$2500.  
Maibohm coupe, \$2395.

Allan Roadster, \$1595.  
Mitchell 7 passenger car.  
Mitchell 4 passenger sport model.  
Velie 7 passenger.  
Columbia 5 passenger touring car,  
\$1995.  
Lexington 4 passenger sedanette,  
\$4400.  
Lexington 5 passenger sedanette,  
\$4500.  
Dixie Flyer speedster, \$1895.  
Hansen sedan, \$3165.  
American 4 passenger sport, \$2550.  
Sayers Derby roadster, \$2595.

**N**EW and improved body models in great number result from the effort of the industry to make the cars of 1921 as salable as possible. Engineering changes are not of great consequence, for the chassis has for some time been acceptable from an engineering standpoint. The great element of saleability comes in the bodies, and here the makers have done a great deal to help the dealers in 1921.

There is only one new car at the show, the Friend, but in the hotels are several—the Navarre, Kenworthy, Northway, Ace and Parenti. In the show six really new chassis are found in the exhibits of R & V Knight, Jackson, Oldsmobile and Fiat.

The great number of new and changed body models, however, showed very clearly the desire on the part of the manufacturers to satisfy the public demand for comfort, convenience and a wide range of styles to cover varying tastes. For the most part the new body models are of the enclosed type. Some of them replace other enclosed models which have been found unsatisfactory for one reason or another and in some cases the enclosed models are added to newer lines which up to the present time have not had an opportunity to get beyond the open car stage.

### ENCLOSED MODELS FEATURE REFINEMENTS

There are many minor refinements in the enclosed jobs which could only be thoroughly covered by a tiresome repetition of trivial details, yet all these changes make for more comfort or convenience or for longer life and are effective sales points.

Where new chassis have been added to a line, in general the idea is to complete the line by the addition of a chassis with a different number of cylinders. Some years back, makers decided on a four or a six, and then tried to convince the prospect that the four or the six was the only thing worth buying. Now the idea seems to be to round out the lines and give the customer the option and let him use his judgment in the matter of the number of cylinders.

### FRIEND

The Friend car is exhibited with roadster, touring and coupe bodies. This car has a 4-cylinder,  $3\frac{1}{4} \times 4\frac{1}{2}$ -in. engine, 112-in. wheelbase and 32x3 $\frac{1}{2}$  tires. Prices are as follows: Roadster, \$1585; touring, \$1585; coupe, \$2485; sedan, \$2585.

### STEVENS-DURYEA

A four-passenger sedan and a four-passenger touring model, mounted on the

Stevens-Duryea chassis, are shown for the first time. No mechanical changes have been made since this car was described in MOTOR AGE last Fall.

### LAFAYETTE MAKES CHANGES

By redesigning the suspension, the height of the top of the frame on the Lafayette has been reduced to about 22 in. The minimum clearance is 9 $\frac{1}{2}$  in. under the front axle. The angle of the steering knuckle has been changed in

The great variety of color shown on the bodies is striking and, unlike former years, most of these colors can be had on stock jobs without extra charge.

Enclosed cars, in spite of their higher price, continue to command a great deal of interest, there being 120 enclosed jobs to 163 open types. Last year there were 119 enclosed to 176 open. Last year was the first show that the enclosed cars were really features, the 1917 show having less than 40.

### CORD TIRES REGULAR EQUIPMENT

The winter top, which took quite a hold on the fancy of the public and which was fostered by the manufacturers, has practically gone out of existence. Many of the open models have California tops, varying over a wide range from those that simply have the space back of the bow filled in to those with the complete California top with glass doors.

There is little new in the line of better carbureting devices. Some changes have been made in the arrangement of the hot air intakes and some of the hot-spot designs have been altered, but the fuel economy feature is not being given the prominence that it had last year.

There is a noticeable increase in the number of cars now regularly equipped with cord tires without extra cost and it is possible that more manufacturers, after seeing the other cars at the show will also come into line. There is a great number of disk wheels on the show models, but for the most part these are not stock equipment and are furnished only at an extra charge.

In addition to the changes and new models here described, there are several models that have been out two or three months and which the public at large has not had an opportunity to see at an exhibition. These include the 1921 Buick, Lexington Model T with Ansted engine, Oldsmobile model 43-A, Packard single six, Paige Detroit big six and the new Pierce-Arrow.

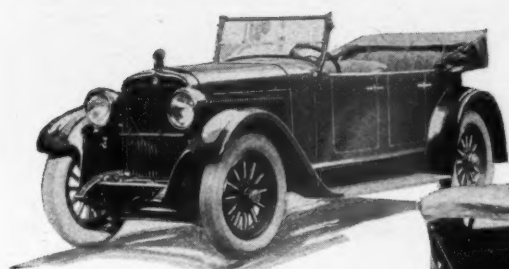
an effort to facilitate steering. The propeller shaft and axle driveshafts are tubular. Chromium has been added to the metal used in the cylinder block castings to increase its hardness. The chassis has been lightened wherever possible, the weight now being 2500 lb.

### DUPONT ADDS PUMP

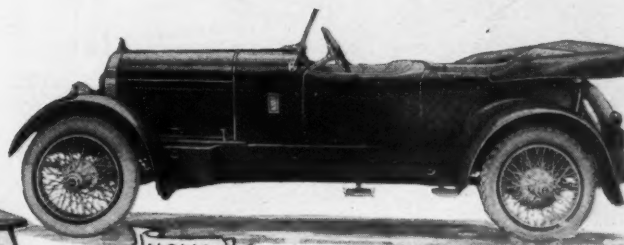
Minor changes only have been made on the DuPont. Thermo-syphon cooling has been abandoned, and circulation is



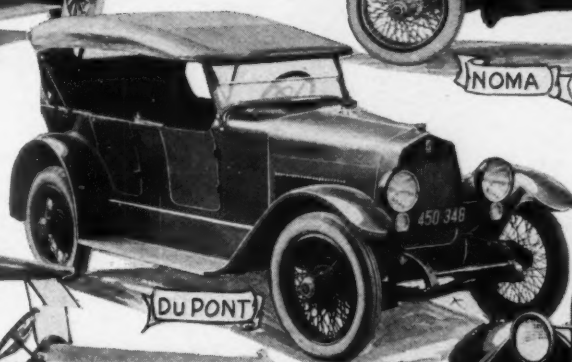
# Raising *the* Curtain on the New York Display



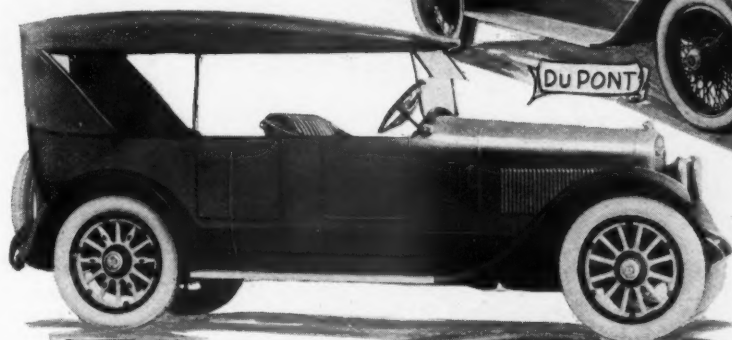
LAFAYETTE



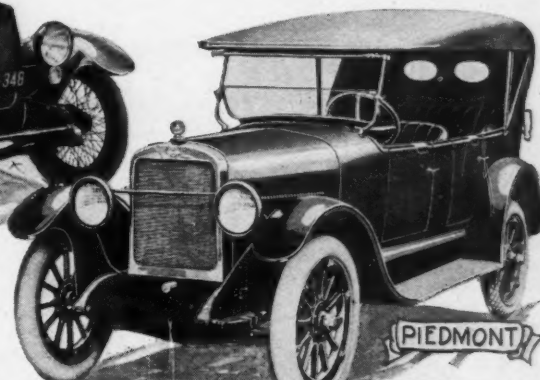
NOMA



DU PONT



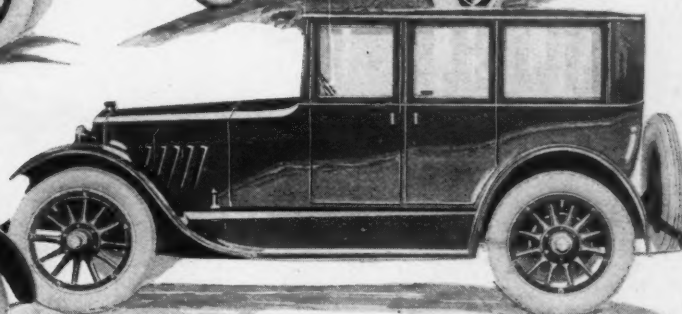
LINCOLN



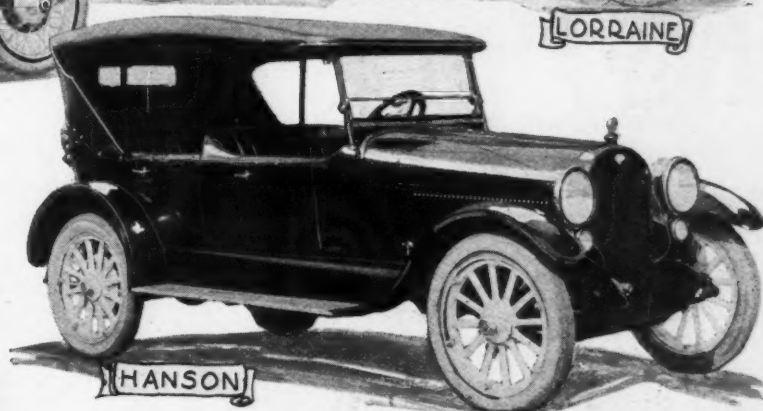
PIEDMONT



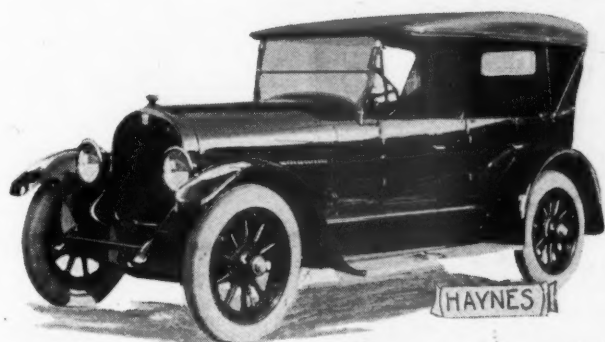
HATFIELD



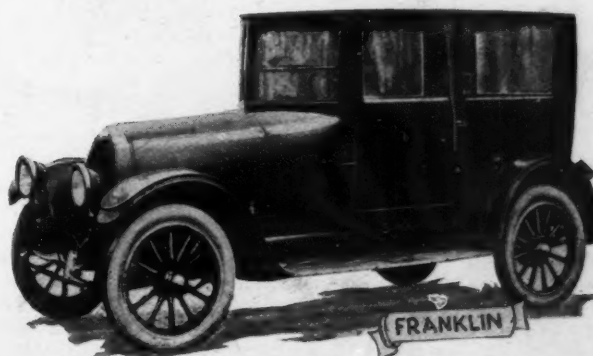
LORRAINE



HANSON

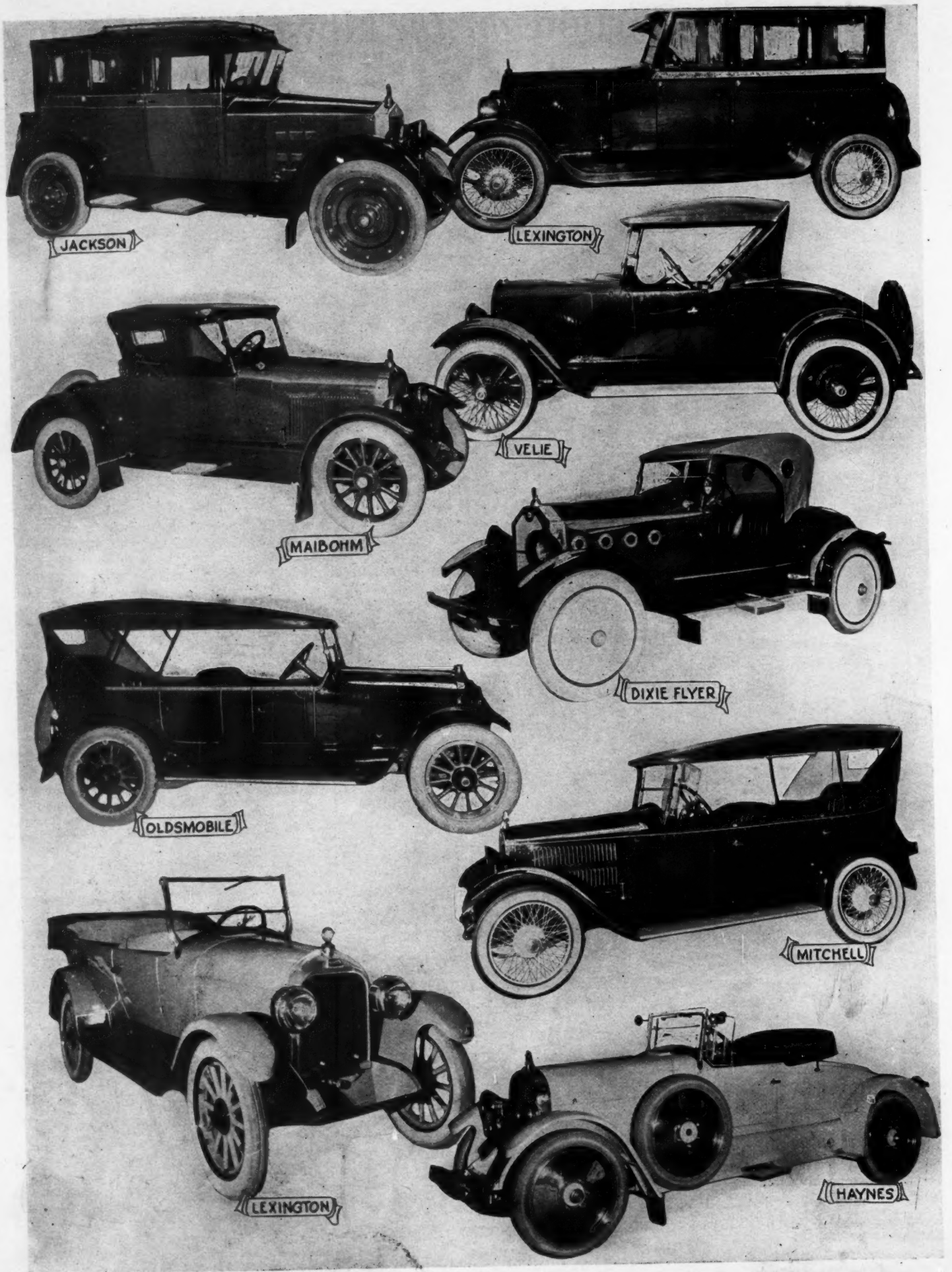


HAYNES



FRANKLIN

Franklin introduces its newly designed radiator. Aside from this difference, the use of a new aluminum piston and newly developed electric vaporizer for cold weather starting, the car is the same as previous Franklins





now secured by means of a centrifugal pump. The footroom on the front seat has been increased two inches on all models.

#### DORRIS IMPROVED

Positive lubrication of the rocker arms is provided on the 1921 Dorris. The rocker shaft is hollow and oil is conducted through it to the rocker arm bearings. The arms themselves are drilled, and copper tubes are inserted in the holes which carry the oil out to the tappets. The pushrods are enclosed in brass tubes, their lower ends being lubricated by oil trickling down from the top. All brass parts on the engine are finished in nickel as is the throttle control. A Timken, fixed-sub type of rear axle and Thermoid universals are used.

#### WESTCOTT

Westcott shows a new four-passenger coupe on the C-38 chassis. The price is the same as the sedan, \$3390, and the body resembles it very much with the exception that it is slightly smaller. Otherwise the Westcott line remains unchanged.

#### APPERSON

With the exception of a change in the engine design the Apperson line remains exactly the same. The cylinder head is now made detachable, and this change has been effected without materially altering the looks of the engine.

#### STEARNS ALTERS HEAD CONSTRUCTION

With the exception of two changes, the Stearns line remains unaltered. The cylinder head has been redesigned so that the cover is of aluminum, instead of iron, and is held to the cylinder head by means of locknuts screwed down on the spark plug bosses. This cover was previously held in place with bolts.

The bodies used this year are Bender, instead of Racine, and while the appearance is that of a lower looking job, the essentials of the body construction remain as before.

#### MOON REVISES PRICES AND SHIFTS GEARSETS

Coincident with the opening of the show, Moon prices are raised \$200, the touring cars being \$2685 on the 6-68 and \$2185 on the 6-48; the enclosed cars are \$2185. The prices were reduced \$400 a few months ago so that the net reduction is \$200. Many changes of a minor nature have been made in the bodies and the gearset has been changed from Brown-Lipe to Warner.

#### CROW-ELKHART SIX HAS HERSCHELL-SPILLMAN ENGINE

The Crow-Elkhart Six is now using a Herschell-Spillman engine instead of the Rutenber. The bore is  $3\frac{1}{4}$  in. and stroke 5 in. The radiator design has been slightly changed, but in other respects the chassis remains practically as before. Disk wheels are standard equipment and individual steps replace the running boards.

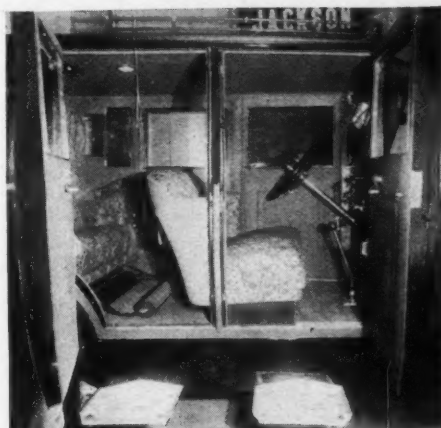
#### KISSEL ADDS NEW BODIES

Kissel shows three new bodies, a tourster, speedster and coach-sedan. The body of the coach-sedan is built very

compactly and resembles a coach body. The seats are wide enough comfortably to accommodate three persons and the interior fittings have been given special attention. The fenders are of the new crown type and have leather mudguards on each front fender. The extra wire wheels are mounted one on each side of the hood. A trunk rack at the rear and the luggage rail on top of the body permit the carrying of extra baggage on long trips without inconvenience to passengers.

#### JACKSON ADDS A FOUR

Jackson is showing a new four-cylinder job fitted with a Lycoming  $3\frac{1}{2} \times 5$  engine. The price had not been definitely set the opening day of the show, but is expected to be approximately \$1445. There will also be a coupe, sedan and roadster bodies. The wheelbase of the



Jackson — one of the most completely equipped cars at the show. Note the little cabinet in the rear compartment containing a mirror and toilet case for women. On the opposite side is a case for men

new model is 114 in. Disk wheels are stock equipment and these are fitted with 32x4-in tires. The upholstery is all in leather. With these exceptions the four-cylinder model closely resembles the six-cylinder.

The six-cylinder line is being continued and a new four-passenger coupe is added, this being priced at \$3760. The chassis specifications remain the same, but the tire sizes have been increased on this one body model to 32x4. Disk wheels and cord tires will be standard equipment.

#### MILBURN SHOWS NEW ELECTRICS

Milburn shows two new electric cars, 38-D and 38-T. These are practically identical with the exception of the battery equipment. The cars are not yet in production but it is expected that they will be in the course of three or four months. The principal changes have been in the matter of battery equipment and the convenience of battery handling. For taxicab and other service requiring more or less continuous operation, the batteries are mounted on rollers so that they

can be quickly replaced with fully charged batteries. The tire equipment is 32x4 $\frac{1}{2}$ -in. cord on wood wheels. A light speed wagon body will be available and speeds up to 28 M.P.H. and a radius of 75 miles will be given. The prices have not yet been decided on for the new models.

#### DAVIS NEW SPECIAL ROADSTER \$2150

Davis shows a new special roadster, known as a sport car and priced at \$2150. It has a capacity of four passengers, and is known as model 53. This is simply an addition to the body line, the chassis remaining the same as before. The prices on all models have been reduced as follows:

	New	Old
	Price	Price
Five-pass. touring car .....	\$1895	\$2185
Four-pass. sport car .....	1995	2225
Four-pass. sport car .....	2150	.....
Two-pass. roadster .....	1995	2225
Two-pass. special roadster .....	2150	2350
Five-pass. sedan .....	2795	3185
Four-pass. coupe .....	2795	3185

#### ANDERSON MAKES CHANGES IN BODIES AND PRICES

Anderson has made some changes in the bodies, the most important of which is the placing of a ventilator on the cowl. Other minor changes have been made inside of the body, including a tool pocket in the left front door. The lamp design is entirely new, and the cars are regularly equipped with cord tires on the sedan and coupe bodies. The prices of all the models have been reduced, as follows:

	New	Old
	Price	Price
Seven-pass. touring car .....	\$1845	\$2195
Four-pass. coupe .....	2795	3200
Five-pass. touring car .....	1795	2145
Convertible roadster .....	1795	2195
Five-pass. sedan .....	2795	3200
Four-pass. sport .....	1845	2175

In addition to these changes, there is an entirely new body model, known as the two-passenger speedster, priced at \$2195. The chassis is identical with the other chassis with the exception of a special gear ratio. There are two extra cord tires and two extra wire wheels, these being included as standard equipment. An option of any body color is given on this speedster.

#### R & V KNIGHT SHOWS FOUR-CYLINDER

In addition to the Model J 6-cylinder line, the R & V Knight is displaying the new four-cylinder Model R. Although there have been a few of the new fours running in the vicinity of the factory, the models on display are first to be seen in the East or by the public in general. In most respects, the four is a duplicate of the six, changes being made where necessary in the size of the parts. The engine is the same as the six, less two cylinders, but the bore is slightly larger, being  $3\frac{1}{4}$  in. The stroke is  $4\frac{1}{2}$ .

The price of the four is \$2150 for the touring car and \$3150 for the sedan. The engine is a unit power plant. The tire carrier is attached to an apron which

goes between the frames over the gasoline tank at the rear. The wheelbase is 116 in. and tires 32x4 in.

#### TEMLAR ADDS ALEMITE SYSTEM

The Templar has added the Alemite lubrication system and made some refinements of a minor nature throughout the chassis. There is a new coupe with a capacity of three passengers that replaces the former four-passenger model. The size of the body is the same and the change is brought about by a rearrangement of the seats. Externally the coupe looks very much like the previous model.

#### THREE FIATS

Three F. I. A. T. models are being imported, only two of which are exhibited. Model 501 has a 4-cylinder engine with 2-9/16 in. bore and 4-5/16 in. stroke; model 505, which is not shown, has a 4-cylinder engine with bore-stroke dimensions of 75x130 mm.; model 510 has the same cylinder dimensions as 505, but the engine has 6 cylinders. Chassis prices are \$2100, \$2300, and \$4100 respectively. Other new features on all models are detachable cylinder head, unit power plant, starting button on dash, and carburetor adjustment on end of steering column. All models have dry disk clutches and 4-speed gearsets with control lever inside the body.

#### FERGUS MAKES CHANGE

The Fergus for 1921 has self-adjusting, internal expanding front wheel brakes. A thermostatically controlled valve has been placed in the exhaust line which controls the amount of heat supplied to the hot stove automatically. Another feature is a thermostatically controlled clutch in the fan drive, which does not engage until the water temperature reaches 160 deg. This car is guaranteed for five years, and the chassis price is \$10,000. Disk wheels are standard equipment.

#### AMERICAN ADDS SPORT

No material changes have been made in the American. A 4-passenger sport model, complete with disk wheels and wind deflectors, has been added to the line, and this car sells for \$2550. The radiator shell is made of aluminum, and the running boards are of pressed steel.

#### SAYERS HAS ROADSTER

A roadster model, known as the Derby, has been added to the Sayers line of body models. This new job is priced at \$2595. No mechanical changes have been made by this manufacturer.

#### HANSEN ADDS A NEW SEDAN

The Hansen has discontinued the 4-passenger sedan and shows a new 5-passenger sedan which has many improvements of a minor nature, yet all calculated to give the driver more comfort or more convenience. The price of the new job is \$3165. The glasses in the doors are of the rimless type and are operated by a crank on the lower part of the door. The chassis remains unchanged.

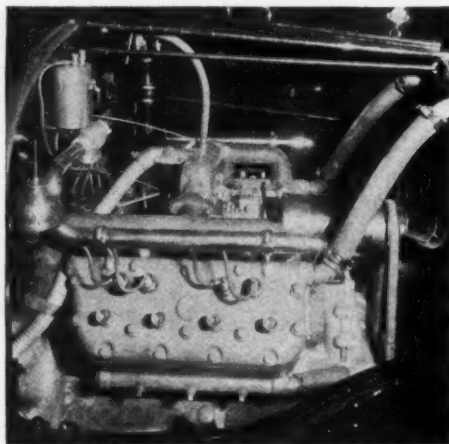
#### HOLMES IMPROVES FAN

Several new features are incorporated in the Holmes for 1921 which will be known as the Series 4. The air-cooled engine has been retained, but a device

called an aeroduct has been placed around the cooling fan. The function of this part is to direct the air leaving the fan, and in that way to increase its efficiency. The cooling effect obtained is said to be doubled by the addition of this device. The overhead valve mechanism is provided with individual covers, and some change has been made in the rocker arm design. The construction of the front of the hood has been changed so that it resembles the conventional radiator more closely. The Stromberg carburetor is standard equipment for 1921.

#### DIXIE FLYER SPEEDSTER

A new roadster, designated as the Speedster, is being exhibited by the Dixie Flyer. This is a two-seater which is given a racy appearance by lowering the seats and inclining the steering column at an acute angle. The price on this model is \$1895 which includes spot-



The new Oldsmobile light eight engine

light, front bumpers, wire wheels and cord tires. No changes have been made in previous models except some refinements in appearance. Nickered radiator shells and windshield frames, bullet sidelights, Macbeth lenses, genuine leather upholstery and Gabriel snubbers are some of the improvements.

#### KLINE CAR MAKES TWO CHANGES

Two mechanical changes have been made in the Kline. The rear end of the propeller shaft is supported in an out-board bearing in the 1921 models, and the diameters of the brake drums have been increased by 4 in.

#### ALLEN ADDS A ROADSTER

The Allen line is now enlarged to include a roadster body, which is shown for the first time. Previously the body equipment was confined to a touring car and a sedan. The new roadster is \$1595, the same price as the touring car. The chassis remains identically the same as before, but there are three color options offered on all body models without extra charge. The starting and lighting system was changed from Auto Lite to Westinghouse a few months ago.

#### DETROIT ELECTRIC ALTERS BODY

Detroit Electric shows Models 86 and 88 priced at \$4000. The chassis and bat-

tery equipment remain as before, and all the changes are in the construction of the body. There is no wood exposed on the new models, and a quarter glass window is added at each rear window to give the driver an uninterrupted view on all sides. These quarter glasses are rounded and blend in with the body lines. The glasses on the doors now lift up and down instead of being stationary as before.

#### ELGIN SHOWS MINOR REFINEMENTS

The only exterior change in the Elgin is the option of colors on the bodies. An addition to the body line is the coupe priced at \$2685. This is a smaller edition of the sedan, incorporating the necessary changes in design. Slight refinements have been made in the engine and the rocker arms and valve tappets are now fitted with covers to prevent the accumulation of dirt, and to keep the oil and grease inside.

#### MONROE SHOWS ENCLOSED MODELS

The chassis of the Monroe remains unchanged, but two new enclosed models have been added to the body line, these being a coupe and sedan, both priced at \$2500. The prices of the open models remain at \$1440.

#### MAIBOHM HAS NEW BODIES AND MINOR CHASSIS CHANGES

The Maibohm line is augmented by a new coupe at \$2395 and a custom built special job, which is not priced. Both of these are mounted on the standard chassis. The special job has a khaki top, aluminum steps, cord tires and is fitted with either disk or wire wheels. The upholstery is in leather and the seat is of the divided type.

The changes on the chassis are of a minor nature, the rear springs now have Vanadium steel leaves, and the construction of the axle spring seats is now such that the spring seat collar is shrunk on the tube and then riveted. The radiator mounting is also changed so that the minimum amount of vibration will be transmitted from the frame to the radiator.

### New Cars at Hotels

Three of the season's new cars, the Navarre, Kenworthy and the Northway are at the Astor Hotel. The Navarre is the design of A. C. Schulz, formerly an engineer with Locomobile and Mercer. Only one model of the Navarre is on exhibition. The company intends to produce two models, a touring car in several body designs to sell between \$4500 and \$5000 and a two compartment sedan such as shown at the hotel to sell in the neighborhood of \$6000.

The Kenworthy line, which is offered in three different models, is distinguished by the use of a new eight-cylinder in a line engine in roadster and touring models to sell at \$5000.

The new Northway line made by the Northway Motors Corp., Natick, Mass., is shown in two models, a two passenger roadster and a seven passenger touring car.







# EDITORIAL



## More Than Mere Exhibitions

**T**HE annual show season, the time when the automotive industry appears before the public in its best dress, is with us once again, and it seems to MOTOR AGE that it is a good time for those of us who are a part of the industry to discuss our shows and what they mean to us.

Of course, to the public they are a great publicity spectacle, and furnish something instructive and educational, but to us they are more than business promoters; they are educational.

The habit with many of us is to view the shows through the eyes of the public, the car buyer, whereas we should view it through the eyes of the expert and student of the product.

There are two sides to every show. The eager prospect is attracted by the pretty bodies, the finish and refinements and the sales points which the industry has placed there for the very purpose of catching the eye and making sales. The other side is defined best perhaps as "the reasons behind the show."

For example, when the prospect looks at the new handles on a door they appeal to him as personal conveniences. To the man within the industry they are an improvement in the craft and an advance step in making the product more salable.

When the prospect is permitted to ramble amid the technical ramifications of the car, each change must of necessity be set before him as a sales point, but the member of the industry, the student of his craft, may

well seek the reasons behind changes and understand how each is a step in the progress of the industry.

Often a change is made in an engine, not to make it more salable, not to improve its performance, but to make it a better manufacturing proposition. And often a change in arrangement is made in order that the service man may have less difficulty doing the repair work which we all know is inevitable with any machinery.

Things like this are the story of the industry for the man within the industry. These matters do not concern the prospect and the general public. The prospect wants his car to give satisfaction—and that to him is the greatest story. But behind all this satisfaction for the prospect are hours of engineering, weeks of planning, years of study, which culminate in production changes, service changes, performance changes, trouble eliminations and a host of things which are easily discerned to the man who has made a study of the industry of which he is a part.

The shows, then, when viewed from this critical inside point of view, become an advance education in the way of information, but a study of this kind teaches the student to become an observer of best practices, it leads him to think along production lines as well as other lines, and it qualifies him for bigger, broader work in that important field of design, production and service.



## ACCESSIBILITY

**W**ITH manufacturers at last giving some real thought to accessibility, judging from the cars at the show, one of the greatest economic losses in the automobile field is going to be checked. There has been a great deal said about the wastefulness of the engine in consuming more fuel than it should to propel a given weight car over a certain distance, but the fuel so wasted could be bought over and over again with the money that the owner has been compelled to waste in labor charges on repairs.

All that is needed is a requisite amount of foresight and experience on the part of the designer to cut down tremendously the amount of time necessary to effect repairs which we know to be common to every motor car no matter how well it is built and how good the materials contained in it. The American public has just so much money to spend every year for motors cars. If this money is going into labor charges on upkeep of old cars it is being out of the purchase of new cars. Many an owner hesitates buying a new car because he has so much money tied up in repairs on his older vehicle.

All this is bad for business. It is a short-sighted policy to think that the labor on these repairs brings profit to the garage or service station. The fact is that the money that is lost by useless time spent on work which the designer can



make easier, represents far more a loss than a gain. There is no more valuable commodity than time and when we can save it we are making a distinct gain.

We have heard of cars designed for performance and others designed for production, but all too rarely do we hear of a car designed for maintenance.

## HOT SPOTS IMPROVED

**W**HILE we have been working with hot spots and other preheating devices for three years, a study of the cars at the show would indicate that manufacturers still have much to learn. The garage and service man knows full well the increased cylinder wear and the greater mortality among piston rings in the winter as compared with summer.

It is important that this development be worked out rapidly as the leakage of fuel past the piston rings down the cylinder walls, cuts the lubricant so effectively that it is little wonder that scored cylinders and worn rings are more common each year as fuel becomes more and more little better than kerosene.

It is apparent that while many of the makers are giving the intake too much heat in summer they are giving too little in winter. In this country we have a temperature range of at least 100 deg. to deal with and it is hardly possible that a non-compensating device will be satisfactory for all conditions.



# Saving Service Dollars in 1921



*Cleaner Chassis Design—Hot-Spotting in Manifolds—Better Spark and Throttle Lever Layouts—Better Body Work, etc., Mean Easier Maintenance*

**By B. M. IKERT**

NEW YORK, Jan. 8—The American car makers have done much to their product for 1921 that will help the men whose jobs it is to keep the vast number of automotive vehicles in repair. While, obviously, there is little to be looked for at the show in the way of radical changes that would affect service and maintenance, it is a fact that careful scrutiny of engines, axles and chasses in general reveal certain things that should appeal strongly to service men. Some of the more important are:

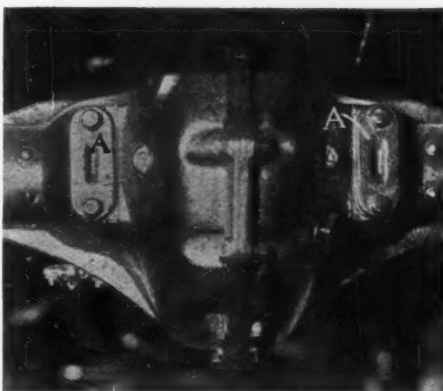
- 1—Cleaner chassis design
- 2—More attention to hot-spotting of intake manifolds
- 3—Better layouts of spark and throttle rods
- 4—Better brake mechanism
- 5—Centralized chassis lubrication methods
- 6—Interchangeability of wire and steel disk wheels
- 7—Better body work

Cleaner, neater chassis with the rattle-breeding linkage, etc., removed are the rule at the show. Each year the improvement in this respect is noticeable and 1921 was no exception. In fact as far as a study of chassis detail is concerned there has been a more noticeable advance towards simplicity and accessibility than for many years.

With the use of Hotchkiss drive growing in the light and medium weight cars there has been a practical elimination of the torque members on the lower and medium priced cars with the result that semi-elliptic springs have naturally increased, these being the simplest and most logical type with this style of drive. Better methods of hanging the brake linkage and by means of coil springs and other devices, to keep the parts taut and rattle proof are also common instead of occasional.

The hot-spotting of manifolds is of vast interest to those who view the cars

from a maintenance and service standpoint, because much of the former grief encountered by service station operatives was due to the inability of engines to cope satisfactorily with present day fuel. Although there is nothing at the show in the nature of a radical device like the fuelizer Packard showed last year, close observation of the engines shows that the proper application of heat to the mixture has received its full share of attention. The application of heat to the fuel in the right way means not only better engine performance but longer life to the engine, less bearing trouble, less cylinder wear and best of all, satisfied customers. Correct hot-spotting will do a great deal



On the Hupmobile the axle gears can be adjusted by merely removing plates A-A

to eliminate much of the misbehavior of engines, which often cannot seemingly be attributed to any particular cause.

No service man who visits the show can help but be impressed by the cleaning up the engines have received in the

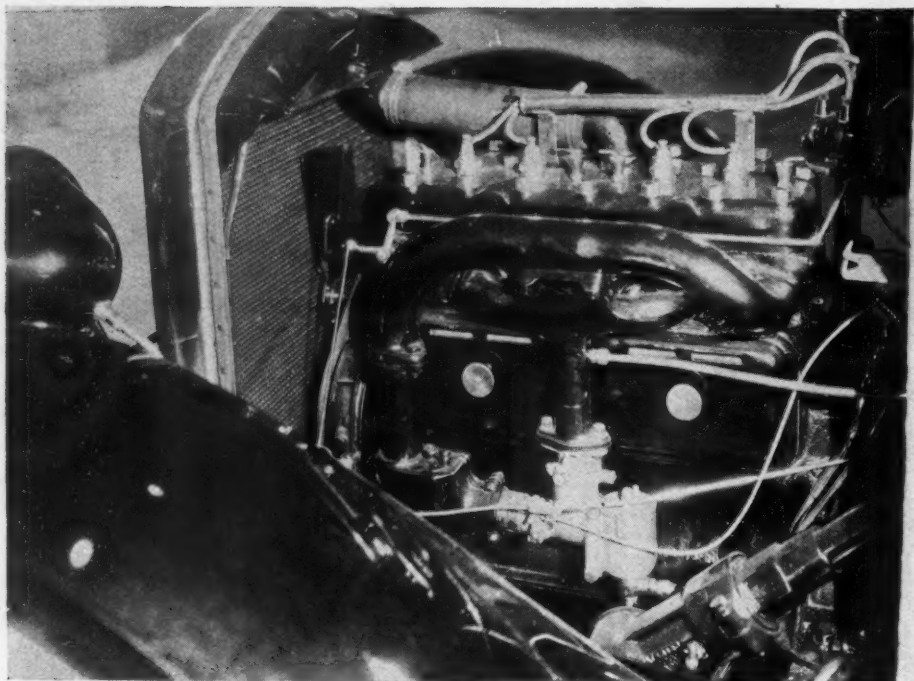
way of better layouts for the spark and throttle levers. Only a few years ago it was common and still is on some engines, that one had to remove a half dozen levers and other units to get at the valve adjustments. Today there is a tendency to place a rocker shaft at the rear of the engine and bring the levers back from the steering column end to this shaft and then run rods straight to the carburetor or ignition unit. This eliminates the criss-cross arrangement of rods that makes it impossible for a mechanic to swing a wrench sufficiently to set up the valves.

On some engines, like the new Allen, for instance, where the throttle rod does run in front of the valve covers it is well to note that the rod has been placed high enough so that the valve adjusting nuts are very accessible. Hupmobile, Mercer, Buick and Templar are typical examples of clean spark and throttle layouts, although there are many others which have given the same subject thought.

There is not the multiplicity of brake levers of former years. Cleaner brake layouts mean less work for the service station, because of the less number of parts to keep lubricated and the ability to keep out grit. The propeller shaft type of brake is popular, especially from the fact that it easily can be adjusted for wear.

Probably the problem which has engaged manufacturers more than any other on the chassis during the past year has been the matter of lubrication. The use of the Alemite system has greatly increased during the year, there being approximately fifty makes of cars at the show so equipped. The Saxon company has installed the Romon system, this consisting of a box tank mounted on the steering column just behind the dash. A lever which normally hangs down is raised and rocked, operating a pair of camshafts which in turn drives a series of small pumps forcing oil under high pressure to all the necessary steering, brake, spring, etc., wearing points. Saxon has contracted for the exclusive equipment rights for this system for a year.

The Fergus car was shown also with



Note how Hupmobile has made its valves accessible by running spark and throttle levers around part of engine

its centralized automatic lubricating system for the chassis. This is the little Irish job which has been previously exhibited and described. It is made on a small scale in New Jersey, selling chassis alone for \$10,000. Other cars were shown equipped with wick-feed oil cups designed to feed only when the car is running. Practically every car shown had some effort on improved chassis lubrication and by far the greatest percentage used oil, although quite a few used grease in some parts and oil in others, which seems a rather unhandy and inconvenient method.

In spite of all this care with chassis lubrication there are still a great many with grease or oil cups in such inaccessible positions that these will rarely have attention from the owners. This is particularly true of the grease cups inside the brake drums, taking care of the wheel bearings. Most of the makers have found means to bring these to an exterior position but there are still others who have not learned that these cups are useless because they never get attention.

#### Clutches and Transmissions

There is very little new in the clutch line, although some manufacturers have changed the type employed. The higher priced cars use the multiple disk type as a rule. The cone clutch is not much in evidence and has been abandoned in favor of a multiple disk type on the new Pierce-Arrow chassis. Most clutch installations are inaccessible. It is necessary as a rule to remove the entire transmission to get the clutch out, and to do this in some instances the rear axle must first be disconnected from the chassis and moved back. Open bellhousings are provided in some cases, and the Fiat transmission and clutch are arranged in

such a way that the gears and clutch can be removed readily and replaced in about an hour's time without disconnecting the casing.

Transmissions are nearly all three-speed conventional types. Many are, however, fitted with propeller shaft brakes, operated in most cases by the hand brake lever, and so placed as to be quite readily adjusted. Air pumps are mounted on the left side of the gear box of many of the more expensive chassis. An opening with cover and S. A. E. standard bolt spacing is provided on many stock transmissions, so that the

purchaser can easily procure and bolt on an air pump flanged to fit the opening in the gear case.

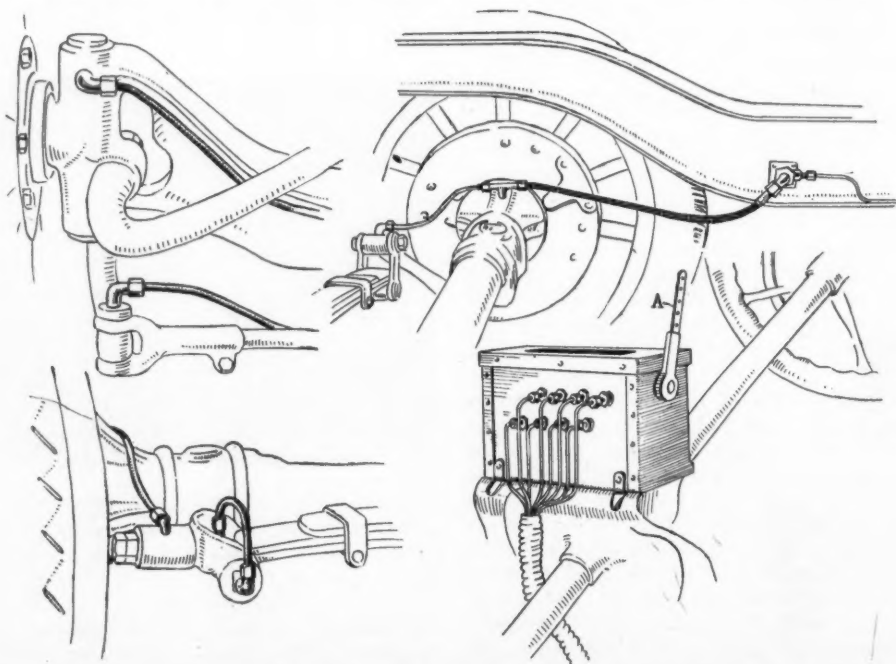
Another point which some makers have studied from an accessibility standpoint and others have neglected is the location of the storage battery. On most cars this is placed so that it can be reached by lifting the front seat. There is a growing tendency, however, to put the battery where it can be reached by lifting a small trap door in the floor boards. An interesting point in connection with battery installations is the Briscoe method of mounting the battery in a frame cross member, thus doing away with the necessity for a separate cradle.

#### Adjustable Shackles

While from casual observation there has not been much change in spring suspension there have been some detail changes which are important from the standpoint of quietness. One of the most interesting of these is the use of adjustable shackles on the Locomobile and on the Navarre, which is a newcomer made in Springfield, Mass., designed by a former engineer of the Locomobile factory. These shackles make it possible to take up the wear and sideplay which develop into rattles.

It seems not unreasonable to believe that the next few years will see a new development in the interchangeability of the wire and steel disk wheel. Already there are indications of this at the show, there being one instance where a maker of steel disk wheels has so built up his hubs that they are interchangeable with a certain make of wire wheel. Although but one instance, it shows that thought has been directed along this line and it is safe to predict that at next year's show there will be more of this sort of development.

Probably one of the chief worries of



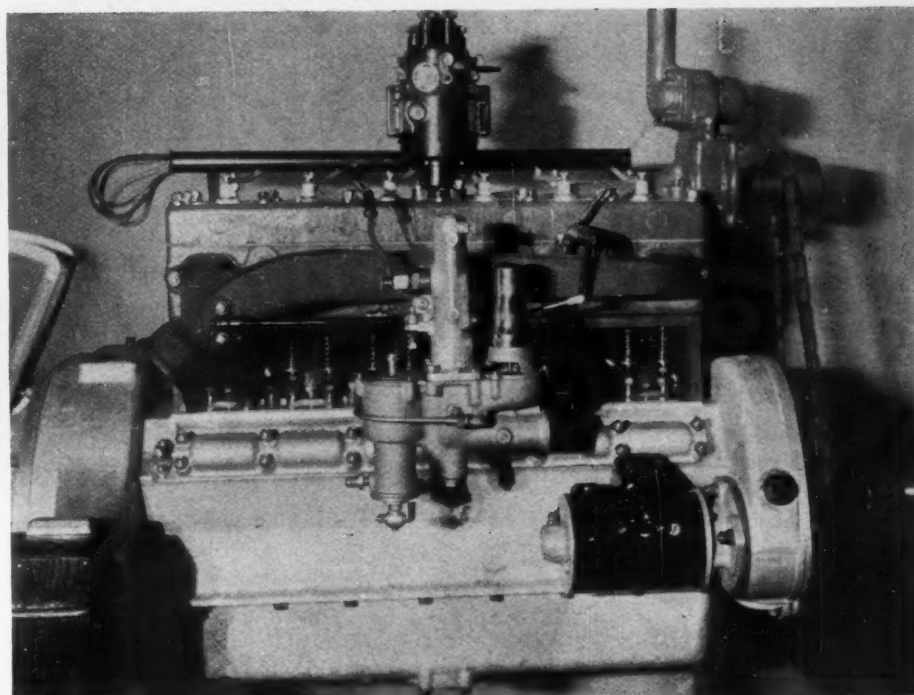
The Romon system of chassis lubrication as installed on the Saxon. The lever A on the reservoir is operated back and forth from the dash which pumps oil to the various chassis members



the service man is that of squeaks and rattles in chassis and body. However, if the cars shown at the show are typical of what we shall see during the coming year, it is almost safe to say that the worries of the service man will be over. The 1921 cars are better built cars in the chassis and in the bodies. Much has been done to eliminate the metallic ring and rattle of doors, etc. Moderate priced cars which formerly used an all-steel construction in the body have in some instances gone to a wood and metal construction. Wood braces in the doors and wood seat risers in place of metal produce a more healthy sound when the car is in operation or when the doors are closed. There is a rapidly growing tendency toward the use of leather between the chassis frame and body and between the body and fenders.

#### GUERNSEY ADDRESSES S. A. E.

Chicago, Jan. 8.—Charles Guernsey, chief engineer of the Service Motor Co., presented a paper on cushioning in truck design before the Mid-west section of the Society of Automotive Engineers last night. The truck should be designed with the upkeep in view, he stated, this demanding scientific cushioning, and he said that if the truck manufacturers expect to stay in business and overcome the prejudice against them because of road deterioration, road maintenance



The Packard single six engine, an example of what can be done in accessibility

must be considered as well as truck upkeep. In conclusion he ventured a prediction that as a result of the use of scientific cushioning in design, lighter, stronger, more economical and faster

trucks will be built. The talk was illustrated with slides and a reel of moving pictures to show the effect produced on various parts of the truck under certain road conditions.

## AT THE ACCESSORY EXHIBITS

THE accessory and equipment exhibits at the show are in the main, real merchandising displays. On the whole, the exhibitors are making a distinct effort to show the utility of their products in an interesting manner. The majority of the booths are well arranged, although here and there, there is an exhibit that could stand a lot of cleaning up.

#### Miniature Buildings Interesting

One of the most interesting exhibits is that of the General Electric Co. At the front of its booth are three miniature buildings with glass roofs. One is a battery service station, another a general repairshop and garage and the third is a private garage. The details of the interior arrangement and equipment are fully worked out.

Right next to this display is the Westinghouse exhibit, and in it is a unique device for displaying the various types of headlight lenses. A standard headlight is mounted so that it projects its light on a white wall. Between it and the wall, there is interposed a disk around the circumference of which, a number of different types of lenses are installed. By revolving this disk, it is possible to bring any particular lens in front of the headlight, and thus to show its light distribution.

The strenuous service to which the starting battery is subjected is demonstrated by the Witherbee Storage Bat-

tery Co. by means of a lifting magnet, which brings a 600-lb. load up a distance of 4 in. with a bang. The magnet is energized by a storage battery. This is an educative exhibit that makes the spectator think that, after all, the battery is a hard working, and faithful servant.

The Stewart-Warner exhibit is dressed up in very attractive style. There is a vertical display stand, divided into compartments which are lined with purple velvet, and in each of these is displayed one of this company's product, which have been gold-plated for the show. The stand is cylindrical and revolves continuously at a slow speed. The new Warn-O-Meter is also featured. This device is mounted in place of the radiator cap, and gives visual warning of excessive water temperature by means of a red light which is operated by a thermostat attached to the cylinder block.

#### Fairbanks Testing Machine

The Clark Equipment Co. shows a bevel gear type, rear axle designed for use on speed wagons of 1-ton, or less capacity. It has a pressed steel housing, and the differential, which is supported in the carrier, can be removed from either the front or the rear of the axle. The weight is about 360 lbs.

A new universal burning-in, running-in and testing machine is exhibited by the Fairbanks Co. The machine is designed to accommodate all types and sizes of car and truck, small marine, and air-

plane engines. The driving mechanism is designed to deliver 75 hp.

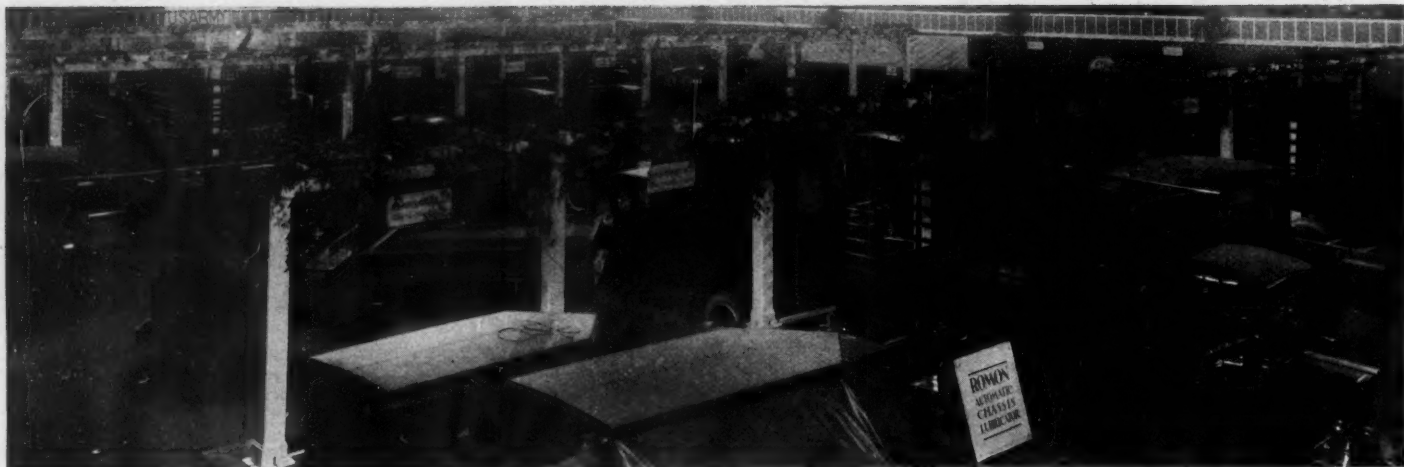
A portable combination grinder, reamer and drill is a new product of the Franklin Machine & Tool Co. A common base, to which it attached a ¼ hp. electric motor, is used with the three tools, which are separate attachments.

#### Novel Trouble Lamp

The Accesso Mfg. Co. shows a trouble lamp with a magnetic base. The current from the battery, in addition to lighting the lamp, magnetizes the base. This makes it possible to mount the lamp on any iron or steel part of the car that is convenient. The unit includes coil, base, lamp socket, a 4 cp. bulb and protecting brass tube and rod.

A system of chassis lubrication is being exhibited by the Merchant & Evans Co. The gearset, universal joints and rear axle are all supplied with oil automatically from a tank located on the dash. It is said that the system can be adapted to any car with little expense.

Another interesting utility is the Cole Cowl Relite. This is a little reflector which may be attached to any instrument on the dash. It is so placed that it reflects the light from the dashlamp onto the dial of the instrument. It is manufactured by the Stemco Engineering Co., who also exhibit a gasoline gage which is mounted on the dash. The dial is calibrated either in fractions or in gallons. It is actuated by means of a float.



View of the New York Motor Truck Show. The exhibit was held in two armories—the 12th Regiment Infantry and the First Regiment Field Artillery

## Buyers Want to See Trucks in Action

*New York Truck Show Emphasizes Fact That "Still" Exhibit Lacks Interest—Success of Demonstrating Show at Milwaukee Recently Points Way to Put Across the Motor Transportation Idea*

NEW YORK, Jan. 8—The 1921 motor truck show, concluded today, introduced two new trucks, five new models of makes already on the market and several engines and equipment developments. And it added to the accumulation of evidence that the "still" truck show does not fill the bill as an agency of promotion of motor transportation.

Conducted by the Motor Truck Association of America in two National Guard armories, the show was no more successful than the one staged a year ago by the National Automobile Chamber of Commerce in drawing attendance, winning newspaper recognition and stimulating sales. Both these shows failed, not because of any deficiency in management but because the public does not seem to be interested in mere displays of working appliances. The show was put on by this truck owners' association, which has some dealer members, after the N. A. C. C. and the Automobile Dealers' Association of New York had voted against an exposition this year. The show association did good work, in promotion and in making the general arrangements, but the public, generally speaking, did not go and results for exhibitors were not such as to create enthusiasm.

The promoters called it a "highway transportation show". Of course it wasn't. It was just a show of motor vehicles, like many that have gone before it. The only way to show transportation, highway or any other kind, is to show it. And the only place to show it is out in the open where there is room to transport something. The truck dealers of Milwaukee did it last fall at the State Fair, where they exhibited trucks in booths out of doors and put trucks at work, with loads, on paved and unpaved highways, open fields and plowed ground and sold the motor transportation idea to thousands of farmers, merchants, manufacturers and transportation men who responded instantly to an invitation to see working appliances at work.

New York may have another "still" truck show and some other cities may hold them for a year or so but among thinking men in the business the trend of argument is away from this sort of promotion and toward something more in harmony

with the truck's place in the scheme of things. And the "working" show is the most logical suggestion yet brought forward.

Toward the end of the week the attendance was fair, better than that at the "national" show a year ago, but there were never any throngs, as there never have been at any truck shows we know of within the confines of four walls.

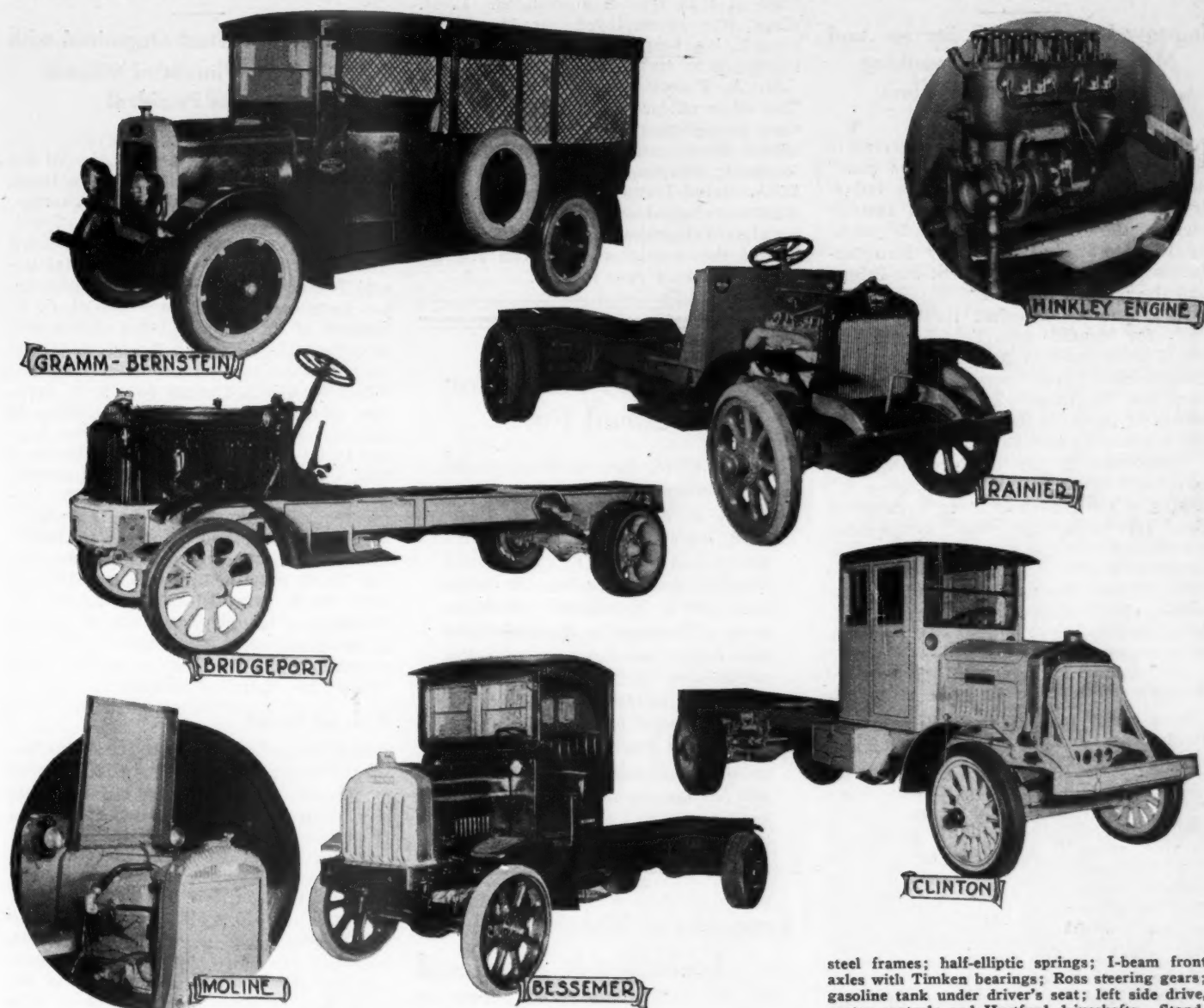
As to business, most of the exhibitors admitted that they didn't expect much—and they were not disappointed. Truck sales have been exceedingly slow in the metropolitan territory for months and a revival of commerce and industry to something near normal is the only thing that will restore truck dealers' revenues. Some sales were made, though a part of them were to prospects who had previously been brought almost to the point of signing, but wanted to "wait for the show." Some prospects were listed, though several exhibitors said frankly that they would have obtained as many with a week's aggressive work of the sales force on the outside and more of them would have been exclusive as against the listing of names of men who probably talked with a dozen or more other exhibitors.

Exhibitors issued free admission tickets to prospects and some of them conducted vigorous campaigns to get these tickets used, but with small success. There were some truck owners and quite a good many drivers in attendance at various times throughout the week and some business men in the market for trucks at a later date but at no time were salesmen kept at all busy answering inquiries. Two national sales managers declared they would be perfectly satisfied if there were no further attempts to hold indoor truck shows.

Among New York dealers there was confidence that there will be a gradual return of buying with a gradual return of business conditions in the first half, or perhaps the first quarter of the year. As to future shows, there was talk enough to indicate that the dealers are giving thought to the demonstration idea as the only apparently feasible aid to downright "plugging" in "putting the truck across."



## Some New Models at the New York Truck Show



### THE HINKLEY OVERHEAD VALVE ENGINE

This is an overhead valve truck engine, differing from the standard truck engine model mainly in the use of overhead valves rather than the poppet valves. It is stated that the change in the valve design has resulted in an increase of power over the other type. The four cylinders are cast in block, the bore being  $4\frac{1}{2}$  in. and the stroke  $5\frac{1}{2}$  in., giving a displacement of 350 cu. in.

### THE CLINTON LINE

A new line of trucks produced by the Clinton Motors Corp., 336 Avenue B. New York City, was exhibited for the first time at the show. All Brown-Lipe gearsets and Timken rear axles. The models have 4-cylinder, Continental engines, complete line is made up of four models as follows:  $1\frac{1}{2}$ -ton, cylinder dimensions  $3\frac{3}{4} \times 5$  in. wheelbase 150 in.  $2\frac{1}{2}$ -ton, cylinder dimensions  $4\frac{1}{2} \times 5\frac{1}{4}$  in., wheelbase 170 in.;  $3\frac{1}{2}$ -ton, cylinder dimension  $4\frac{1}{2} \times 5\frac{1}{4}$  in., wheelbase 190 in.; 5-ton, cylinder dimensions  $4\frac{3}{4} \times 6$  in. wheelbase 204 in. Copper tubular radiators without fins are used on all models. Prices on the various sizes have not been fixed as yet.

### BALSA WOOD REFRIGERATOR BODY

A new refrigerator body constructed of Balsa wood was one of the innovations. This wood is very light, being much lighter than cork and

was first given attention at the motorboat show last year. This refrigerator body is constructed without supports and weighs but a fraction what the old style bodies weigh.

### WARD LA FRANCE 5-TON TRUCK

Ward LaFrance showed smaller models at the truck show last year and the 5-ton made its initial appearance at the 1921 show. The chassis price is \$5,590. The engine is a Waukesha, 4-cylinder with bore of 5 inches and stroke of 6 inches the cylinders being L head and cast in pairs. Cooling is by water, using a Long radiator with a fan at the front, the water being circulated by a centrifugal pump. Ignition is by a Bosch DU-4 magneto. A Westinghouse two unit starting and lighting system is installed at an extra charge of \$120. The standard parts on this truck include a Zenith carburetor, Brown-Lipe clutch and gearset, Timken worm drive axle, Ross Steering gear and Merrill spring.

### BRIDGEPORT

The Bridgeport line consists of four models with the following rated capacities:  $1\frac{1}{2}$ -ton, 4-ton and 6-ton. The respective prices are \$2,350, \$2,850, \$3,850, and \$4,500. The manufacturer is the Bridgeport Motor Truck Co., Bridgeport, Conn. All models are assembled of standard parts.

The following points are common to all models: Brakes mounted on rear wheels; pressed

steel frames; half-elliptic springs; I-beam front axles with Timken bearings; Ross steering gears; gasoline tank under driver's seat; left side drive, center control; and Hartford driveshafts. Standard equipment includes driver's seat, front fenders, side and tail lamps, horn and set of tools.

### RAINIER SHOWS TWO NEW MODELS

The Rainier Motor Corp. showed two new additions to the line, a  $3\frac{1}{2}$ - and 5-ton. The price of the smaller model is \$4,500 and of the larger \$5,250. Aside from the tire sizes both trucks are exactly alike in specifications, the parts differing only in size where more weight or strength is required in the larger model. The tire sizes on the  $3\frac{1}{2}$ -ton are 36x5 front and rear. On the larger model the size is 36x6 both front and rear.

Continental engine is used on both models, this being 4 cylinder  $4\frac{1}{2} \times 5\frac{1}{4}$  in. with cylinders cast in pairs. The standard parts on both models include Zenith carburetor, Brown-Lipe clutch and gearset, Timken worm drive axle, Ross steering gear and Spicer universal clutch.

### BESSEMER FOUR TON TRUCK

This is one of the new models shown by an old manufacturer. The chassis price is \$4,285. The engine is a Continental 4 cylinder,  $4\frac{1}{2} \times 5\frac{1}{4}$  in. Ignition is provided by a Bosch magneto with manually controlled advance and the governor is a Pierce. The carburetor is a Stromberg, fed by gravity from a tank under the seat. Other standard parts in the assembly are Borg & Beck clutch, Baker gearset with 4 speeds forward, Torbenson internal gear axle, Perfection springs and Avrac Universal. The front tires are 36x6 single and the rears are 36x10 single.

## Parts Makers See Progressive Return to Normal Conditions

### Improved Quality of Service and More Scientific Merchandising and Sales Efforts, Factors

**N**EW YORK, Jan. 10—A progressive return to a "sound, safe and sane" normal for America's automotive industry is indicated by the second installment of the symposium just made public by the Motor and Accessory Manufacturers' Association on present conditions and the outlook for 1921.

The association asked its 384 members for candid analytical statements based on facts and figures rather than "hope-tinted" predictions. These members are the country's major manufacturers of parts, units and equipment for the automotive industry.

Confidence in the basic vitality and continued growth of the automotive industry is still the prevailing keynote in the responses to the symposium. Throughout all the statements runs the apparent conviction that the automotive industry has learned its lesson in the school of experience from the recent depression, following the unparalleled peaks of production in the early part of 1920.

#### Factors in Situation

The trend toward stabilizing of the fundamental factors of the industry and the forward-looking emphasis on the elements of sound business methods, especially with regard to improving the efficiency of production and the quality of service; more intensive and more scientific merchandising and sales effort; a broader vision of "trackless transportation" as a necessity in keeping America moving and bettering distribution facilities—these are the outstanding features of the members' comments.

The stimulation of business following the National Automobile Shows in New York and Chicago is generally expected by even the most conservative critics and students within the industry.

Greater attention to improving engineering, production and operating systems is now being given by the manufacturers, who are taking advantage of the adjustment period to analyze their own production and increase their efficiency.

#### ST. LOUIS SHOW IN FEBRUARY

St. Louis, Jan. 8—Robert E. Lee, manager, announces that the annual St. Louis automobile show will be held in the Garrett building, this city, Feb. 7 to 12. Only passenger cars and accessories will be displayed.

## Youngstown Dealers Vote Funds for 1921 Activities

Youngstown, Ohio, Jan. 10—The budget commission of the Youngstown Automobile Dealers Association at the annual meeting of the association here reported

a program calling for the expenditure of \$6300 in 1921 in promotion of association activities. The dues of \$300 per year fixed in 1920 remain unchanged. L. M. Shaw was re-employed for his fourth consecutive year as secretary and was continued as treasurer.

H. A. Froom was elected president. The other officers chosen follow: First vice president, B. P. Higby; second, Albert Elton; trustees in addition to the foregoing officers, James A. Henderson, D. A. Heindel and F. B. Smith. E. P. Zinn was elected as junior member of the legislative commission. The senior member of this commission, I. Van Baalen, serves his third year in 1921.

## Need Certificate for Reduced Fare

**S**T. LOUIS, Jan. 10—Every dealer coming to Chicago to attend the fourth annual convention and the third trade frolic of the National Automobile Dealers' Association should remember to ask his station agent for a "Certificate" which the agent will execute to the dealer who then brings this certificate with him to Chicago. At Chicago he has this certificate validated by Harry G. Moock, general manager of the association, and presents it to the ticket agent in Chicago. The agent then will sell him his ticket home for half fare.

## Avalanche of Motor Vehicle Legislation Is Threatened

New York, Jan. 8—Advance reports of the state sub-committees of the Motor Vehicle Conference Committee, of which David Fenner is chairman, indicate that an avalanche of motor vehicle legislation is threatening the 42 legislatures that are beginning their sessions. The tendency as seen by these reports is for legislation with the following points as objective: increased registration fees, restriction of maximum weights and a state tax on gasoline.

The encouraging feature of these reports is that in several states local bills have been drafted based on the "Proposed Uniform Vehicle Law," published by the committee, and where submitted to advance legislation committees this law has been accorded an encouraging reception.

Word from Washington indicates that there is slight need for hearings before a congressional committee before the special session of Congress. According to Alfred C. Reeves, general manager of the National Automobile Chamber of Commerce, the taxation committee of the chamber is drafting constructive proposals for the hearing when it takes place.

## \$10,000,000 Company Formed in Chicago to Finance Trucks

### Manufacturers Trust Organized with Col. C. R. Vincent of Vincent Trust as President

**C**HICAGO, Jan. 8.—As a solution of the financing problem of the motor truck manufacturers on which David Thomas, general manager of the Motor Truck Manufacturers Association, has been working for some time, the Manufacturers' Trust, a \$10,000,000 finance company, has been organized here with Col. C. R. Vincent of the Vincent Trust of this city as president. Although the company has been formed largely through the instrumentality of Mr. Thomas as general manager of the association his aim being to obtain "methods of financing those having to do with the motor truck business that would be sound and flexible enough to meet all the requirements of the motor truck manufacturer who is conducting his business on a sound safe basis" it is in no way connected with the Motor Truck Manufacturers Association itself. It is expected, however, that the members of the truck association will be given preference since the number of manufacturers that may secure stock will of necessity be limited.

#### Will Aid Dealer

The methods by which the Manufacturers' Trust hopes to attain its purpose of meeting the reasonable financial requirements of the motor truck business from the manufacturer to the user are co-operative but the amount of stock the manufacturer may purchase has been limited to \$15,000 or 1,500 shares of a par value of \$10. This has been due to the feeling that the manufacturer can well use his money in the manufacturing end of his business and that to require him to place a large amount in a finance company to finance his time sales would be like requiring him to "raise himself by his own boot straps."

The position of the dealer is explained in this wise:

"The local bank is the corresponding bank which passes on any transaction between the local dealer and the user involving the Manufacturers Trust, this, of course, with a complete knowledge of the methods and policies of the Manufacturers' Trust. In this way the local dealer wherever he may be located is afforded the benefits of a local finance company, plus the facilities of a big company doing business nationally.

"The dealer of the manufacturer who has stock in the Manufacturers' Trust is encouraged to buy a small amount of stock in the Manufacturers' Trust more as evidence of good faith than anything else, unless it be the stabilizing influence that the connection might have upon the dealer himself and the closer relationship which this investment encourages between the dealer and the manufacturer."



## Show and Convention to Bring Dealers in State to Milwaukee

**Authorities in Industry Will Address Meeting—Affair More Than Local in Nature**

MILWAUKEE, Wis., Jan. 10.—The thirteenth annual Milwaukee show, which opens a week from tonight in the Auditorium, will not alone be a notable event from the standpoint of forming the principal agency to effect a revival of consumer demand for passenger cars, but as a convention of the dealer trade of Wisconsin. While the annual show always has attracted from 75 to 80 per cent of dealers throughout the State, the formation last Fall of the Wisconsin Automotive Dealers' Association will make it possible for the first time to put the annual winter show congregation upon a thoroughly organized basis as a convention rather than merely a gathering.

### Prepare for Overflow

The show will again be under the auspices of the Milwaukee Automotive Dealers' Association and the management of Bart J. Ruddle, executive secretary and manager. William F. Sanger, Franklin dealer, is chairman of the show committee. As usual, the show will consist of three divisions, namely, passenger cars, motor trucks, tractors and equipment, and tires and automotive equipment. There will be seventy exhibitors of passenger cars; thirty-nine motor truck dealers, and nearly 100 tire and equipment exhibitors. The entire main floors and basement floors, equivalent to more than 80,000 sq. ft., will be required. A special structural steel mezzanine floor, installed in the main arena a year ago, will again be used to accommodate passenger cars. The over-flow will be handled in Machinery hall in the basement, and in Kilbourn, Juneau and Walker halls on the ground floor.

The convention of the Wisconsin dealers' association will be held Jan. 19, with at least one session on Jan. 20. Some of the most noted authorities in the automotive industries have been invited to address the convention. The show as well as the convention is recognized as one of the principal ones on the calendar, as the Milwaukee show is not a local affair, but embraces the entire territory of Wisconsin and the Upper Peninsula of Michigan. The distributors having headquarters in Milwaukee almost invariably have jurisdiction over this territory.

## Tendency Among Dealers in Hartford to Improve Service

Hartford, Conn., Jan. 8 — Inquiry among Hartford dealers discloses that most of them have an abundance of service work to carry them through the winter period. Some of them are advertising this winter service using pictures of their plant as a means of interesting

the reader. Furthermore, some concerns that heretofore served only their own makes of cars now handle anything including Fords. In fact, it is realized that there is a great deal of Ford business about and it is worth going after. The result is that in the larger shops men have been taken on who devote their time largely to Fords alone.

One prominent dealer said that he had employed seventeen men but had laid off four of them not because service business was dull but that it was an opportunity to unload some non-producers. This practice has been general all along the line and while the really good mechanic

## Dealers Go On Trade Trip

OKLAHOMA CITY, OKLA., Jan. 5.—The Oklahoma City Motor Car Dealers Association held a meeting last night and completed plans for an automobile tour during the week of Jan. 10 taking in the entire northeast section of Oklahoma. Thirty makes of cars and twenty different accessory houses have signed to go on the trip.

The territory takes in the richest section of the state including the most important oil producing centers. The trip will cover 730 miles. Night stops will be made at Okmulgee, Tulsa, Bartlesville, Ponca City and Cushing. The tour will start at Oklahoma City Monday morning and will return the following Saturday. Other tours are now being planned to cover all other sections of the state.

Oklahoma City dealers have adopted this plan to study sectional conditions throughout the state.

can readily find employment it is difficult for a man not knowing the business to find good work. There has been a tendency among all dealers during the past month or two to improve their service department.

## Brooklyn Chooses Officers and Gets Silver Loving Cup

Brooklyn, N. Y., Jan. 4.—At the annual meeting of the Automotive Service Association of Brooklyn last night, Gillman T. McFarland was elected president; Herbert L. Bailey, vice-president; and Fred M. Smith, secretary and general manager.

The following directors were elected, the first three to serve for two years and the last three for one year: Charles Tate, Edgar H. Carroll, Charles Dinguid, Edward C. Krieger, N. W. Durnin, Frederick C. Cabot. The election was followed by the presentation of the silver loving cup to the Brooklyn association as winner of the baseball series. President McFarland also delivered an address on the subject of Pirate Parts.

## Cleveland Optimism Shown by Growth of New Buildings

**While Not Expecting Boom Days of War, Dealers Anticipate General Trade Revival**

CLEVELAND, Jan. 10.—A long list of new buildings that either have been built in 1920 by automobile dealers in this city or by others for them on long term leases gives a definite answer to the question whether Cleveland dealers are discouraged in these days of the economic readjustment. Never in the history of the motor car trade in this city have so many new retail buildings been erected as in the year just ended. It is estimated that the number of new dealer buildings occupied in 1920 is around fifty and that the value of the structures is from \$5,000,000 to \$8,000,000. In practically every case that a new building has been occupied the dealer has expanded his space and this expansion is said to be from 1,000,000 to 1,750,000 square feet.

According to reports, business began to decline in the last six months of 1920. Cleveland automobile dealers just commenced to get into their buildings in this period. Notwithstanding the change in trade conditions not a single dealer altered or trimmed new buildings plans.

### No Regrets at Expansion

Not a single dealer in a new building regrets that he expanded or built on the future, for the future is viewed with optimism by them. They are not looking forward to the boom days of the war when, figuratively speaking, consumers stood in line to purchase cars but they are expecting a genuine revival of trade, a healthy condition when everybody will have to hustle to sell cars and the ones who hustle hardest will sell the most.

"Prospects are good for the future," says A. L. Englander of the A. L. Englander Motor Co. "Prospects could not be anything else so long as the motor car remains essential to the American people. If we did not have a few lean days now and then we would soon get fat and lazy. We need hard selling days in order to gear us up; they are a condition that is needed to restore the patient to 'normalcy.'"

That statement is an accurate reflection of the sentiment among dealers. Expansions in kindred lines of the automobile trade, such as tires and parts have been great.

### PASSENGER SHOW FOR COLUMBUS

Columbus, Jan. 8.—The annual Columbus automobile show will be held Jan. 24 to 29. Memorial Hall, the location for the show, is not available for any week in February and the Columbus Automobile Show Co., at a meeting here, preferred a January to a March exhibit. Lack of space will confine the displays to passenger cars. The balcony and approaches of the hall will be used to show accessories.

## Close Co-operation Between Maker and Dealer Necessary

**Manufacturer Sees 1921 as Good  
Year With Merchandising  
Era Reached**

DETROIT, Jan. 7.—Closer co-operation on the part of manufacturers and dealers when the sun again begins to shine alone will suffice to put the industry back on its feet, in the opinion of Chas. W. Nash, president of the Nash Motors Co., who addressed a dinner of the Nash dealers and local financiers here tonight.

"There is not the slightest chance of our being awakened some morning in the near future and finding business back on normal basis with orders coming in one after the other. Nor is it good business for us to think that. In my opinion, there will be no resumption of demand before March, and then when the spring weather sets in, we can look for a constant and steady increase," said Mr. Nash.

In direct contrast with the views of most of the manufacturers and business men, Mr. Nash declares the attitude of the bankers last summer saved the situation for the industry. When the financiers told manufacturers and dealers last June that credit would be restricted in order to put business back on the same level, he declared, it was a master stroke in favor of successful readjustment, and he said he hated to think what might have happened to the automobile business throughout the country if that step had not been taken.

Mr. Nash characterized himself as a conservative optimist. He expressed the opinion 1921 would be a good year, but added that the demand renewal must be steady, gradual and permanent. He declared we have reached the era of merchandising, and said manufacturers must make cars and distributors and dealers must sell them better than they have ever done before. The industry has not developed any real salesmen in the last two years, according to Mr. Nash, and added that it now will have to produce them because the business is back to real competition. He expressed the opinion the automobile shows would have a stimulating effect for the next month, but looks for no real activity until spring.

## Hartford Associations are Brought Together by Show

Hartford, Conn., Jan. 8.—Dates for the annual Hartford automobile show having been definitely settled, the Hartford Automobile Dealers Association is going ahead with plans for the exhibition which will be held in the state armory Feb. 12 to 19. A year ago the Automobile Trades Association of Hartford was formed primarily to stage a show for those dealers who could not exhibit in the original association show. Most of the members of that association, including the founders, have made application to become members of the old organization and while

these applications are yet to be acted upon there is every reason to believe that when the association meets the applicants, who are now eligible for membership, will be admitted.

The Automobile Trades Association of Hartford still exists but the feeling prevails that one big show is enough for Hartford. There is a general feeling of satisfaction in automobile circles that members of the newer association have signified their intention of coming into the older.

## Dealers Invited to Exhibit at National Show in Mexico

New Orleans, Jan. 8.—New Orleans automobile dealers and exporters have received invitations from the American Chamber of Commerce of Mexico City to take part in a national automobile show to be held in the new \$25,000,000 opera house, in the Mexican capital in March, of this year. Free passage of exhibits through the customs houses and reduced rates of railroad and water transportation have been arranged.

The list of manufacturers and exporters who have agreed to take space in this exhibition is placed at 47 to date, in the statement of the American Chamber of Commerce. There were also reported to be 139 dealers in automobiles in all of Mexico, "the majority of whom," the invitation says, "will take part, either with exhibits of their own, or as parts of the exhibits of the manufacturers of the cars they sell."

## HARBECK LEAVES AMERICAN CAN

New York, Jan. 8.—J. R. Harbeck, who has been devoting himself for some months past to the affairs of the various John N. Willys enterprises in which he is a director and to the reorganization of the Maxwell and Chalmers companies, has resigned as vice president and director of the American Can Co. in order to devote all his time to his automobile interests. It is expected that the Maxwell-Chalmers consolidation plan, which has been approved by a large majority of the stockholders and creditors, will be declared operative about the middle of this month.

## Optimism Campaign Launched by Dealers in Bloomington

Bloomington, Ill., Jan. 7.—Members of the Bloomington Automobile and Tractor Association launched a campaign of optimism with the opening of 1921 in discouraging and prohibiting all talk of depression. As the most effective action that could be undertaken along the lines of this policy the greatest show of cars in the history of the association will be staged the second week of February at the Deere Building.

In addition to the staging of the mid-winter show upon an elaborate scale the association will conduct a vigorous sales campaign and will go after repair work, storage business and will stimulate the sale of accessories and other supplies. A lively advertising campaign will be conducted.

## Nearly 50 Percent of Car Sales Are Made on Deferred Payments

**Finance Company Receives Replies  
to Questionnaire Sent to  
10,000 Dealers**

NEW YORK, Jan. 10.—Deductions from the replies of 10,000 dealers in the country to a questionnaire sent out by the General Motors Acceptance Corp. are to the effect that 46.7 per cent of all cars being sold today are being marketed on some deferred payment system. The period covered by the questionnaire was from Aug. 1, 1919 to July 31, 1920.

In their replies the dealers gave separate figures on sales to city residents and to farmers and in each class listed the number of sales of new and used passenger cars and new and used trucks for cash and on deferred payments. Of the sales to farmers 38,216 were made on time and 18,326 for cash. City residents paid cash more frequently than the farmers, only 44.9 per cent of cars sold to residents of cities being through credit arrangements, there being 61,081 cash sales out of a total of 110,920. Of the new passenger cars reported to have been sold in cities, 40.6 per cent were on credit while 53 per cent of the new trucks were partly financed. Only 51.2 per cent of the used trucks were sold on time and 51.9 per cent of the used passenger cars.

The dealers also reported an average of 9.3 months as the maximum length of time they allowed on deferred payments to city residents and 11.1 months to farmers. The average down payment on all deferred payment sales reported was 40.3 per cent of the cash selling price.

## Tire Dealers' Associations Invited to Chicago Meeting

Chicago, Jan. 8.—Invitation have been sent out by the Chicago Tire Dealers' Association to all similar associations throughout the country to attend a convention to be held at the Morrison Hotel, this city, Jan. 31, Feb. 1 and 2, for the purpose of forming a national organization. If necessary the meeting will be carried over to Feb. 3.

There are now fifteen tire dealers associations with others springing up almost over night. Frank Zeman, president of the Chicago organization, is making arrangements for the convention with the assistance of the local association members and is working on a program to be presented to the dealers when they convene.

## HAS MULTI-DEALER PLAN

St. Louis, Jan. 10.—The Weber Motor Car Co. has introduced the multi-dealer system in St. Louis and East St. Louis for the sale of Studebaker cars. Edward Weber, president of the company, has appointed as Studebaker dealers the Park Automobile Co., of which Sam S. Primm is president and the Auto Sales and Service Co., which is headed by Jack Bledsoe.



## Service Must Predominate, Reeves Tells Accessory Men

Question of Changing Show Rules  
Discussed by Advertising Man-  
agers' Council

NEW YORK, Jan. 7.—The Advertising Managers' Council of the Motor and Accessory Manufacturers Association has asked a revision of the show rules of that organization. The subject came up at a largely attended meeting of the council today, following the reading of a paper by W. E. Brewster of the U. S. Light and Heat Corp. Mr. Brewster's position was that the show was for the benefit of the industry and as long as the people were willing to pay to see this merchandise, it was the duty of those within the industry to exhibit. He advised better care of show leads and inquiries.

In the discussion A. H. Bartsch of the American Bosch Magneto Corp., raised the question as to whether the "show was a good place for accessories." He said that the fact that only 137 out of 400 members of the association were exhibiting might be significant. He accepted the theory that accessory manufacturers must stand by the shows, but wanted some changes in the rules. Several speakers admitted that they were dissatisfied with the show rules and especially the limitations which kept them from the Pacific coast. General Manager Hemmingway of the Association told the council that the subject of show rules had recently been opened for discussion and he would welcome any suggestions. A resolution prevailed that the executive committee of the council offer suggestions to Mr. Hemmingway in the revision of the rules.

The keynote of the council program was service. E. W. Clark of the Clark Equipment Co., advised a better co-ordination of association work for the advertising of the industry to the country. His paper was a history of transportation from the beginning of time, with a co-incident development of wealth as the cost of transportation is lowered.

Alfred Reeves of the National Auto-

mobile Chamber of Commerce, said that the automotive products had been well advertised and that the spirit of the advertising had been very good, but the time had come for the changing of the program and that service must predominate. C. C. Parlin of the Curtis Publishing Co. predicted that the period of retarded sales was about passed and that merchant buying from factories must soon begin. He said that most of the national car advertising served chiefly to keep car owners sold on the car they owned. A. R. Kroh appealed for more informative advertising to farmers and he presented this as important because of the need of farmers for a cheaper crop production.

## Slipshod Methods Mean Bad Business, Dealers Decide

New Orleans, Jan. 8.—Discussion of the present conditions by the Oldsmobile dealers from several states of the South at a luncheon given here by the Gulf Oldsmobile Co. of this city showed plainly a unanimous opinion that only by the elimination of the slipshod, unbusinesslike dealer could the industry hope to weather the coming winter, spring and summer and eventually get back on its feet.

G. L. East, of the local company, presided as toastmaster, and among the speakers were Frank Gross, assistant sales-manager in the Oldsmobile factory; L. Foote, assistant manager of the Dallas, Texas, branch of the General Motors Finance Corp.; and Edward Thurber, leader of the salesmen of the Oldsmobile dealers on the Gulf coast.

### FOR CONTROL OF TRUCK LINES.

Detroit, Jan. 7.—A bill extending the powers of the state utilities commission to cover the operation of motor truck lines has been introduced in the Michigan legislature by Representative L. G. Defoe, the bill stating that the truck lines have become an important part of the transportation system competing with railroads and interurbans and are at present without state control as to rates and service. The measure provides for supervision.

## Higher Taxes Recommended for Highway Maintenance

Connecticut Commissioner Says Mo-  
tor Vehicle Should Pay Large  
Part of Road Expenses

HARTFORD, Conn., Jan. 10.—In order to double the revenue obtained from car registration, that is to raise 3,000,000 instead of \$1,800,000 from this source for highway maintenance, State Highway Commissioner Charles J. Bennett recommends that passenger cars pay 75 cents per horse power instead of 50 cents at present and that trucks be taxed from \$25 to \$600 according to size. All this is covered in the commissioner's annual report to the governor.

"It seems fair," says the commissioner in his report, "that the motor vehicle which uses the road should pay to a large extent for the ordinary replacements of surface, the removal of snow and the ordinary safety devices, such as railings, signs and signals."

The commissioner proposes the following schedule for trucks: 1-ton, \$25; 1½-ton, \$50; 2½-ton, \$80; 3-ton, \$150; 3½-ton, \$200; 4-ton, \$250; 4½-ton, \$450; over 5-ton, \$150 a ton.

The commissioner also recommends that steps be taken to provide for the collection of license fees from foreign trucks. The report further shows that there are 600 miles of trunk highway on which no construction work has been done, the cost of which under present prices would be \$24,000,000. Add to this the hard surface pavement needed for 120 miles of road costing \$9,000,000 plus another \$7,000,000 to bring the bridges up to standard carrying capacity together with work during the next year would require \$40,000,000. At present there are 1,557 miles of state highway, 42 miles having been built during the past year.

### BALTIMORE BODY CHANGES NAME

Baltimore, Md., Jan. 9.—The Baltimore Automobile Trade Association is the new name of the Baltimore Automobile Dealers' Association and will come into use as soon as the legal change takes place.

## For Better Business Boost Good Roads



The Illinois legislature has outlined a program of road work aimed at pulling the state "out of the mud." Here are examples of some of the state's good roads as evidence that all the highways are not ankle deep in mud. This stretch which was recently opened between Springfield and Peoria is the longest completed Federal aid project in the country. A notable celebration attended its opening

## Akron Companies Start Year With Much Business on Books

### Surplus Stocks Will Take Care of January Orders—Greater Pro- duction in February

**A**KRON, JAN. 8—Akron rubber companies resumed operations Jan. 3, after being closed for the Christmas holidays, with fully \$50,000,000 worth of new business on their books so far for the month of January. This estimate is conservatively made and is likely to be exceeded when all January orders are compiled. Manufacturing business averaged \$53,410,000 a month last year.

This, according to business experts, is the most encouraging note in the tire industry that has been sounded since the period of retrenchment began last summer. It is not taken to mean, however, that the \$50,000,000 worth of business will result in increased production at once but is taken to augur well for an early resumption of factory operations on nearly a 100 percent basis. Practically all companies have finished products on hand sufficient to accommodate January orders but with orders continuing to increase as they have since Dec. 15 it is stated that this surplus rapidly will be worked down and will demand greater production at least by Feb. 15 in order to keep production apace with the demand.

The B. F. Goodrich company on Monday increased factory operating time and put on many former employees for the first time in eight months. There was a line of men before the company's employment office.

The Firestone company is understood to be prepared to increase production just as soon as the present surplus is worked down by deliveries on early 1921 orders.

The Goodyear company's business is coming in to such an extent as to indicate an early necessity for increased production but, under the company's present temporary financing program, there is no possibility of the present payroll being increased.

### STOCKHOLDERS ASK ACCOUNTING

Columbus, O., Jan. 8—Alleging that the W. O. Cooper Co. of Cleveland had made unjust profits "in disposing of stock in the Templar Motor Co. of Cleveland," J. W. Wilson and B. Pittman, stockholders, have filed suit in the local courts asking for an accounting from the W. O. Cooper Co., and also for the rescinding of the contract between the two concerns over the disposition of Templar stock. In the petition the Cooper Co., it is claimed, was formed for the sole purpose of selling Templar stock.

### 1000 BILLS IN 42 STATES

New York, Jan. 7—The Motor Vehicle Conference committee has made plans to collect prompt, complete and accurate information regarding the introduction and

progress of motor vehicle bills in both the Federal and State Legislatures which will hold sessions next year. In addition the conference committee is completing the organization of sub-committees in each of the 48 states. Facts and arguments will be laid before the state legislatures to guide them in the enacting of motor vehicle legislation based upon scientific and equitable principles. It is expected that more than 1,000 motor vehicle bills will be introduced in the forty-two state legislatures which will hold regular sessions beginning this month.

## Automotive Business Again Supported by Evening Mail

New York, Jan. 8—The Evening Mail, of this city, which was party to an agreement among New York newspapers to restrict automobile news, has broken from this agreement and will resume its former editorial support of the automotive business. John C. Wetmore, the dean of automobile writers in this city, who is the automobile editor, says he is mailing today a notice announcing this new policy, as follows:

"I am pleased to announce that during and after the coming motor truck and passenger car shows in this city, Jan. 3 to 15, 1921, The Evening Mail will resume its long-time policy of publishing daily the latest and fullest news of the automobile industry and sport. The resumption of this policy will enable The Evening Mail to continue and emphasize its unrestricted support of the motor car trade, which has been a conspicuous feature of the paper in its daily automobile column, conducted for sixteen years by me, as the successor of men of such prominence in the sport and industry as Malcolm Ford, Alfred Reeves and A. G. Batchelder, its former editors."

## Blekre Company Producing Tires at New St. Paul Plant

St. Paul, Minn., Jan. 8—Production has been started in the new plant here of the Blekre Tire & Rubber Co., organized with a capitalization of \$4,500,000 to manufacture high grade cord and fabric tires and tubes. The plant has a capacity of 2,000 tires a day and will employ 250 operatives. The company will devote itself entirely to high grade products and will not enter the medium grade field.

The formation of the company is the outcome of the growth of a small tire jobbing business started by E. O. Blekre three years ago in Sioux City, Iowa. Through the expansion of this business the Blekre Tire & Rubber Co. was formed to manufacture and market its own product and St. Paul was selected as the manufacturing site.

Officers of the company are E. O. Blekre, president; S. E. Blekre, vice-president and treasurer; G. W. Wells, secretary; S. A. Rheinstrom, vice-president and general sales manager; G. O. Ludcke, advertising manager and W. E. Greer, superintendent.

## Court Places Responsibility for Car Ownership on Dealer

### Should Be Able to Determine Whether Purchaser Is Illicit Handler of Liquor

**I**NDIANAPOLIS, IND., Jan. 8—Automobile dealers who sell cars, innocently or otherwise, on the time payment plan to men engaged in the liquor traffic in violation of the provisions of the Volstead Act may lose all title to the cars in the event of seizure by the Federal authorities. The question came up this week in the local Federal court before Judge Albert B. Anderson. No ruling was made, but the court's remarks were of such a character as to put dealers on their guard in selling automobiles.

The court now has in its possession about seventy-five cars seized in the course of Federal prohibition prosecutions. In many instances these cars have been purchased on the payment plan and are not more than half paid for. In one instance the sales contract expressly provides that in the event the car is used in illicit liquor traffic the title shall revert to the dealer. Speaking of this point, Judge Anderson said that such a clause could in no way affect the claim of the Federal government to the car under the Federal law.

"Persons who sell cars ought to know," said Judge Anderson, "in so far as they can through diligent inquiry, that the purchaser of a car will not use it in violation of the law. People in the automobile business especially ought to know that men who buy cars on the installment plan and are not able to pay for them otherwise, are being arrested right along for violating the prohibition law."

A number of Indianapolis dealers have sold cars that have been seized in liquor raids and the question of ownership is of vital interest to them.

### HENDERSON CASE CLOSED

Boston, Jan. 7—Thomas L. Wiles, trustee for F. H. Henderson & Co., Inc., of this city, dealers in automobiles, states that the bankruptcy case of the company has been closed and that the creditors are to receive 20 per cent. There were so many small cases with attending complications that Mr. Wiles petitioned to compromise the many small claims. The company went into bankruptcy several months ago with liabilities amounting to \$200,000.

### FORD DEALERS HOLD SHOW

Cedar Rapids, Iowa, Jan. 8—A winter show of Ford cars has been concluded here by the Rude Auto Co., Iowa's biggest firm of Ford dealers, the exhibit being pronounced a decided success. Sedans, coupes and enclosed tops for Fords were featured, while a factory expert was on hand to explain the mechanical features of the car. Feature contests were conducted in connection with the display.



## Considering Several Plans for Goodyear Readjustment

### Important Changes in Management Will Be Made Regardless of Arrangement Adopted

NEW YORK, Jan. 10.—Considerable progress is being made in the difficult task of readjusting the financial affairs of the Goodyear Tire & Rubber Co. Several plans have been taken up by the bankers interested as well as by unsecured creditors. One of these calls for an issue of junior securities to protect the claims of the unsecured creditors and a first mortgage to cover the bank borrowing. It is believed there is an excellent chance of this plan being worked out and if it is, it will involve the issuance of new securities aggregating between \$50,000,000 and \$60,000,000. None of these securities will be offered for sale within at least 90 days.

No effort will be made to sell the 20-year debentures for at least three months and the present outstanding obligations to unsecured creditors will be continued undisturbed for that period.

Whatever plan is worked out, it is proposed to make important changes in the management of the corporation and it can be said upon authority that a strong corporation executive will be placed in a position of authority so that he can readjust the affairs of the company on a sound operating basis. The main difficulty now is getting various interests to agree upon some basis of adjustment. There is every reason to believe that this

ultimately will be done. The great tire company is entirely solvent and its difficulties are the result of the general financial and industrial depression. It is expected that the details of refinancing will be announced at the next meeting of the stockholders.

## Effects Plan to Replace Steam Locomotives with Motor Trucks

Winchester, Va., Jan. 10.—The Winchester & Western Railway Co., whose line from this city to Wardensville, W. Va., is almost completed, has successfully worked out a plan whereby powerful motor trucks, equipped with flanged wheels, will be used instead of steam locomotives.

The passenger and freight trains will be shorter than those usually hauled by steam power, but there will be more trains. Practical tests, recently made with a small automobile, led the officials of the company to experiment with powerful trucks, and the plan has been found to work admirably. Trains will be running into Wardensville within a month, it is declared. That town has assumed a "boom" atmosphere.

### BONUSES FOR EMPLOYEES

Cincinnati, Jan. 3 — Employees of Harry P. Kelly, distributor of the Republic truck in this territory, were guests of Mr. Kelly at dinner at the Business Men's Club. In accordance with his annual custom, Mr. Kelly presented each employee with a bonus for the year. Accompanying the dinner there was an elaborate entertainment program.

## Enforcement of Weight Limit Ruling Is Stopped by Dealers

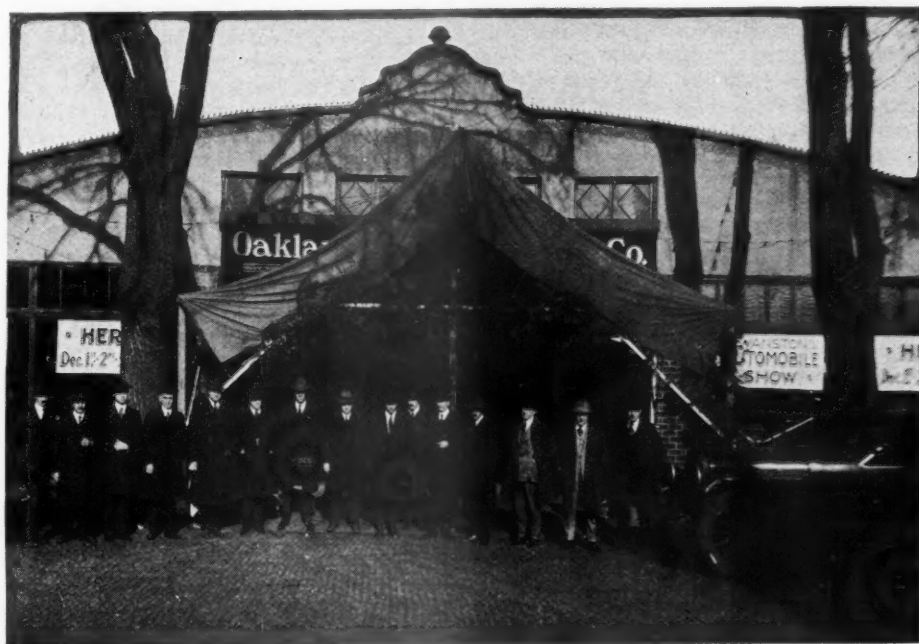
### Claim That Heavy Duty Trucks Are Aimed at by County Commissioners

YOUNGSTOWN, Ohio, Jan. 2.—An injunction against the county commissioners enforcement of recently established gross weight limits for motor trucks on main market highway bridges was granted in common pleas court yesterday on petition of Albert Buerhle Co., the Youngstown Automobile Dealers association and others. A. M. Henderson, counsel for the association, asserts that the action of the commissioners was taken for the sole purpose of ruling heavy duty trucks off the highways. The weight limits placed by the commissioners eliminated 3½, 4 and 5-ton trucks from operations outside the city of Youngstown.

Enforcement of the ruling would prove an exceptional hindrance to a highway program that calls for expenditure of \$500,000 in highway improvement in this and adjoining counties this year, Youngstown being the center for supplying motor vehicle equipment to the road builders and for supplying of road materials. If the heavy duty truck were eliminated, the road builders would be required to use trucks of lesser capacity, increasing the costs and the construction time.

If the commissioners do not, within a reasonable time, start reconstruction of the bridges to bring them to the limit fixed by statute, the dealer association is prepared to start action in mandamus, to compel the commissioners to proceed.

## Go-Getters Stage Show and Get 'Em



Evanston, Ill., with a population of 35,000, has fifteen automobile dealers and everyone of them is a member of the Evanston Automobile Dealers Association which was organized three months ago in order to show prospects that there was no need of going to Chicago, a next door neighbor, to buy cars when they could buy them at home. The first thing it did to drive home this message was to give an automobile show. C. M. McDonald is president of the association; E. Coal, vice president; C. H. Brights, secretary, and H. Thompson, treasurer.

### WALL STREET TURNS

New York, Jan. 10.—The shorts in Wall Street who have been hammering automotive stocks mercilessly for weeks past have at least been driven to cover and there has been a sharp turn up in the quoted value of these securities. This is a result of optimistic reports from various automobile centers telling of the resumption of activity on a reduced scale and the general belief that buying will pick up as a result of the shows. Among the leaders in the recovery have been Studebaker, General Motors, Pierce-Arrow, Chandler, Kelly-Springfield Tire and American Bosch Magneto.

### NEW MITCHELL DISTRIBUTOR

Memphis, Tenn., Jan. 7.—Warden Motor Sales Co. of this city have taken over the complete Mitchell line of motor cars for Eastern Arkansas, Western Tennessee and the majority of Mississippi. The executives of this company are Buford Warden, president; Frank Folsom, vice-president; June H. Rudisill, Jr., vice-president and V. P. Rogers, secretary-treasurer, distributors for the F. W. D. truck and the Allen motor car. Associated with them is C. R. Arnoult, well known in southern automobile circles.

## Change Fire and Theft Rates in 20 Middle Western States

**Insurance in Cities and Rural Sections Differ—Method of Computation Also Altered**

COLUMBUS, O., Jan. 10.—Starting Jan. 1, a new rate for fire and theft insurance on automobiles and motor trucks was put into effect, covering the entire state of Ohio. In six of the largest cities of the state theft insurance will cost more and fire insurance will cost less. In the rural sections of the state both fire and theft insurance will cost relatively less. The new rates were promulgated in 20 of the Middle Western states.

In addition to the changes in the rates there is a complete change in the method of computation. Heretofore the list price of the car or truck had been the basis on which the rate was computed, but since the first of the year the basis is the model and type of the car as fixed by construction and horse power of motor and modified by construction. The new basis also provides for lower rates for cars equipped with permanently closed bodies. What is known as the "second hand charge" has been eliminated in the new regulations. The new schedule is promulgated as an "experience grading and rating table" designed to put the higher charges where the heavy losses have occurred.

Credits are allowed for approved fire extinguishers, locking devices and spare tire locking device. Insurance may be carried during the first year of an amount not exceeding the cost of the car, for the second year 80 per cent of the initial policy and for the third year an amount not exceeding 70 per cent of the initial policy.

In the six larger cities and surrounding counties the rates on a Ford touring car, model 1920, for fire are reduced from \$1 to 85 cents per \$100 on fire insurance and raised from \$5 to \$6.65 on theft insurance. A Dodge five-passenger touring car, model 1920, is raised from \$3 to \$4 on theft, fire insurance remaining the same; a Packard runabout, model 1920, is raised from 25 cents to 35 cents on theft and the fire rate is reduced from 55 cents to 45 cents. A Buick roadster, model 1920, is raised from \$3 to \$4 on theft and the fire rate is reduced from 75 cents to 65 cents.

## Opposition to Appropriation Fades as "Jim" Mann Pleads

Washington, Jan. 7.—Essentiality of the passenger car is again established. Congressman James Mann of Illinois, leader of the majority of the House of Representatives, testified to this fact so convincingly that opposition to appropriations for automobiles for departmental use, faded. "The automobile," says the Congressional chief, "is as much a necessity today for convenience and transaction of business as the street car is in a big city."

Congressman Mann called attention of

the House to the existence of a law which was enacted at a time when farmers were disposed to fight Government encouragement of automobiles because of the effect on horses. No money can be expended for automobiles without the express authorization of Congress. The Illinois legislator believes that the law should be revoked since the farmers own more automobiles than any other class.

## Holds Government Without Right to Confiscate Cars

Grand Rapids, Mich., Jan. 7.—Federal Judge Sessions in a decision here has ruled that the United States had no right to confiscate an automobile used in liquor transportation where the owner is innocent of the knowledge of the wrongful use of the car.

The verdict was in the case of Stevups Bros., Buick dealers, seeking recovery of a car which was confiscated when Arthur Volets was arrested charged with bootlegging and a small quantity of whisky was found in his car. Volets was buying the car from the Stevens Company on installments and the latter contended that his action was without their knowledge or consent and, as they were the owners of the car, the officers had no right to confiscate and sell it at auction.

Judge Sessions ruled with the dealers and the car which had been released to them on bond pending the trial was turned over to them and the bond discharged.

## Michigan Pikes Association Tour Is Scheduled for July

Detroit, Jan. 8.—The second national good roads tour of the Michigan Pikes Association will start the second week in July from this city and will end here covering a distance of 1,500 miles by road and almost 600 by rail and water. Its itinerary includes both the Upper and Lower Peninsulas of Michigan and portions of Wisconsin, Minnesota and Ontario. The tour will traverse in part, in the order named, the following established highways: Wolverine paved way, Michigan center line highway, Dixie highway-East Michigan pike, Theodore Roosevelt-Kings highway, Scott Memorial highway, East Michigan pike-Dixie highway, Michigan center line-Over the top route and the Dixie highway cut off. Numerous good roads meetings will be conducted during the progress of the tour, definite arrangements for which will be made at a meeting of the association in this city, Jan. 18.

## NEW ROCHESTER DISTRIBUTORS

Rochester, N. Y., Jan. 8.—It's Miller-Lee Motors, Inc., who are distributors of the Overland and Willy-Knight automobiles in Rochester now. Following a transaction completed this week, that firm took over the Willys-Overland company factory branch here. The company is composed entirely of business men new to Rochester, and they have no connection whatsoever with the Overland-Rochester Co. which went out of existence last spring.

## N. A. D. A. Convention to Hear 'Master Address' by C. W. Nash

**Forum Will Be Continued This Year  
—Program Announced by  
Harry G. Moock**

S. T. LOUIS, Mo., Jan. 10.—Harry G. Moock, general manager of the National Automobile Dealers' Association, has announced the program for the association's fourth annual convention which will be held at the Hotel La Salle, Chicago, during show week.

The "master address" of the convention will be delivered by Charles W. Nash, president of the Nash Motor Co. of Kenosha, Wis., who will speak on the relations between manufacturers and dealers as a necessary element of the success of both. Three other strong features are provided for the business sessions of the convention. E. St. Elmo Lewis, advertising specialist of New York, will discuss the relation of advertising to merchandising; Leo A. Pell, president of the Chicago Automobile Trade Association, will speak on his success in the Chicago distributing field and L. E. Hooker and Arthur Livingston will discuss "Measuring the Value of a Territory," showing by charts how it is possible to tell how many automobiles a trade territory can absorb.

The detailed program follows:

**SATURDAY, JAN. 29.**

10:00 a. m.—Directors' meeting.

5:00 p. m.—Opening, Chicago national automobile show.

**MONDAY, JAN. 31.**

9:00 a. m.—Registration.

10:00 a. m.—Call to order.

President's address, H. B. Harper, Philadelphia.

Treasurer's address and report, F. W. A. Vesper, St. Louis.

Secretary-general manager's report, Harry G. Moock, St. Louis.

12:30 p. m.—Luncheon.

2:00 p. m.—Call to order.

Appointment of committees by president.

Address, C. W. Nash.

Address, Leo A. Pell, Mitchell Motor Car Co., Chicago.

6:30 p. m.—Third annual N. A. D. A. trade frolic.

**TUESDAY, FEB. 1.**

10 a. m.—Call to order.

Forum.

1. Passenger car division—P. H. Greer, Maxwell-Chalmers-Hupmobile distributor, Los Angeles, leader.

2. Commercial car division—N. H. Cartinhour of the Cartinhour-Bowman Co., Indianapolis, Ind., distributor of Federal trucks, leader.

12:30 p. m.—Luncheon.

2:00 p. m.—Address, E. St. Elmo Lewis. Report of committee.



## Detroit Plants Re-opening; 10,000 Men Return to Work

### Plan to Increase Forces and Production Steadily Without Immediate Real Production

**D**ETROIT, Jan. 8.—Between 8000 and 10,000 men returned to work in automobile factories yesterday and today. While it is the plan of the manufacturers to increase forces and production steadily it is admitted freely that there will be no real resumption for a month at least. It was stated unofficially that the Dodge plant will be down indefinitely. Practically the entire force of 22,000 men are off, though a few hundred have been given work cleaning and overhauling the plant and parts department. Dodge continued to have a heavy output in October and November but it was stated that the factory condition would be similar to that of Ford. The dealers are heavily overstocked and thousands of cars are stored.

Cadillac is still taking inventory and will not get back to production before next week according to Lynn McNaughton, general sales manager. Cadillac is said to be heavily overstocked with cars though the officials deny that such situation exists.

### Packard Reopens

Packard reopened yesterday with about 50 per cent of the regular force. Officials say they will increase the force as circumstances warrant. Production will be confined to closed jobs on the single six chiefly and only in keeping with demand.

Studebaker opened plant No. 5 yesterday with 400 men. They are simply getting the plant in shape for resumption of production next Monday in all the company's units as announced before the holidays. They will start on a schedule of 90 cars daily in all plants, increasing as conditions warrant.

Paige-Detroit began taking back married men yesterday and hope to get back into production as soon as the plant is in shape, probably by the end of the week. They will maintain at a rate of 25 cars daily with about a thousand men working temporarily. The company has orders for January delivery totaling \$2,000,000 and for February \$2,500,000. This with the daily demand expected, will permit an increase to 35 cars daily by Feb. 1. A survey of Paige dealers on Dec. 1, according to H. C. Dart, advertising manager, show fewer new cars unsold in the country than the actual number of Paige dealers.

The Lincoln Motor Co. have about 200 men at work though they are not attempting to produce any cars. All their efforts are being centered chiefly in the parts department. They expect to swing into production next week though officials have not announced the schedule. The officials of Maxwell-Chalmers say the Chalmers plant will open next Monday

with about 300 men working on closed cars of both types. About 75 men went to work at the Columbia Motor Co. yesterday in the parts department and they are getting the plant into shape for the resumption of production. The date of starting has not been decided.

Other plants are still down insofar as production of automobiles is concerned, though the parts departments in all plants are being operated except in the case of the Hudson and Hupp which did not stop for inventory, continuing on the same curtailed schedule in vogue the last two months. The Essex plant is closed, but both Hudson and Essex cars are being built in the Hudson plant at the rate

## Downtown Garage to Have Sixteen Stories

**C**INCINNATI, Jan. 10.—Cincinnati has a new public garage project. A charter has been applied for at Columbus for the Automatic Garage Co., which is to have a capitalization of \$800,000 and is to build a 16-story garage downtown with a capacity of 1000 automobiles.

Actual construction is to be started within thirty days and the building completed in six months, according to O. A. Jackson, inventor, of Chicago, who is arranging the plans. Jackson says automobiles will be handled at the rate of 600 cars an hour, if necessary, by a system of his own invention.

of about 15 daily. Hupp is continuing the schedule of 35 maintained since Dec. 1.

Wage schedules in all plants which reopened yesterday, have been cut to around 20 per cent but no complaint has been received and workmen after weeks of idleness are apparently eager to return at the reduced scale. The stopping of the Ford and Dodge plants simplified the wage problem and plenty of labor is now available at a reasonable wage. Best of all, manufacturers say the returned workmen are full of "pep" and are apparently ready to give full return in service despite the wage reduction.

Many parts plants are still idle and the resumption of those which do Ford work is chiefly problematical. The Briggs Manufacturing Co. makers of Ford tops, Liberty Starter Co., and Hayes Wheel Co. at Albion, probably will not resume till Ford starts production. The Fisher Body Corp., Wilson Body Co. and the Auto Wheel Corp., have been cut materially as a result of the Ford shutdown.

Buick will get under way next Monday and will continue indefinitely their daily schedule of 250. Dort will not get started on their new model, probably, until the end of the month and Oakland and Olds expect to start next week with a short force and their output limited to the demand in sight.

## Proposal to Dump Trucks on Market Arouses Dealer Action

### Importation of American Trucks From Europe Also Cause of Appeal for Protection

**L**OS ANGELES, Jan. 8.—Pacific coast motor truck representatives are alarmed over the prospective effect on their business of the importation of war trucks from Europe and their sale in this country and the suggestion of Congressman Anthony that the War Department be compelled to release between 30,000 and 40,000 trucks it now holds.

Seventy-five trucks imported from Europe were unloaded here a few days ago and similar cargoes are destined for San Francisco, Portland and Seattle. These trucks have been brought here by the Slough Trading Co. of England. Their local representative is quoted as saying that the trucks originally were sold abroad by agents of the American government.

### Trucks Practically New

The shipment received here is made up of Packards and Rikers, all practically new. The representative claims that the Slough company has 4000 similar trucks to be marketed in this country including Whites, Pierces and Peerlesses in addition to Packards and Rikers. He is seeking to dispose of the local shipment intact but if unable to do so probably will auction them. He also has on hand large quantities of tires and tubes from the same sources.

In view of market conditions, the arrival of these trucks from Europe and the Anthony amendment proposal, truck dealers are appealing to national associations and congressional representatives for protection. They say the country might absorb 4000 from Europe but 40,000, never.

## Des Moines Ford Plant Is Again on Production Basis

**D**es Moines, Jan. 8.—Although the Ford factory at Detroit is still temporarily shut down, the Ford assembling plant here has resumed operations after its holiday inventory taking and is employing about 500 men.

The local plant is now producing about 100 cars a day, the output consisting of touring cars, runabouts, trucks and sedan bodies. It is operating on a four day a week schedule, this being approximately the same weekly production as that in effect before Christmas. The four day a week schedule gives employment to more men than was the case under the full week schedule, with the same total output, in effect a month ago.

### Full Operation Soon

Within a short time the local plant expects to get into full operation, with more than 1,000 men on duty. E. F. McClure, manager of the plant, who was away from here for a few days, has returned.

## French Grand Prix Date Set to Permit American Entries

**Exhibitors at Paris Show in October  
Must Submit Racing Program to  
Manufacturers**

By W. F. BRADLEY

*European Correspondent of Motor Age*

PARIS, Jan. 8—(By Cable)—Entries for the French Grand Prix are disappointing, including only four Ballots, three Fiats, three Darracqs, two Sunbeams, two Talbotts and one Mathis. Unless late entries are received on double fees it is doubtful whether the race will be held.

Paris, Dec. 17—July 23 has been picked as the date of the French Grand Prix race for 183 cu. in. cars. Most probably this race will be run on a 10½ mile triangular course close to the town of Strasbourg. The date was selected at a conference held in Brussels during the show week. Other dates decided on were Targa Florio May 29; Belgian Grand Prix, Aug. 13; Italian Grand Prix, Sept. 4. With the exception of the Targa Florio all these races will be for 183 cu. in. cars.

The French Grand Prix date was made rather later than usual in order to give time to Europeans taking part in the Indianapolis race to return to France, and to allow American teams to get over. Drivers intending to run in both events can get back to France and will have a full month in which to prepare for the speed test in Alsace.

### Other Events Planned

While the above events are the most important in Europe, they do not by any means complete the program. In early April there will be a race for 183 cu. in. cars on the Island of Corsica, with a first prize of \$20,000. An international fuel consumption test has been scheduled for May 15 and 16 at Le Mans; there will be a big touring competition at the same place from July 10 to 14, and a Fall meeting in September comprising voiturette race, light car race and 3-litre race.

By announcing the date of the next Paris automobile show for Oct. 5 to 16, the French manufacturers have put a stop to all the reports concerning a show in May or June. Americans requiring space in the Grand Palais will be served only after all other requirements have been met. This arrangement is made under a rule which says that all nations having an import duty of 30 per cent or more at the declaration of war, will be given stands only after the requirements of other nations have been met. The United States was the only nation having this high import duty, and the show regulation is a measure to obtain a lower import duty in America, and at the same time to restrict the sale of American cars in France.

Exhibitors at the Paris show will have to submit to the decision of the leading

groups of French manufacturers as regards their racing and competition program. One of the show regulations states that no exhibitor shall take part in any race, competition, demonstration or exhibition, unless that event has been approved by the National Automobile Federation. Failure to comply with this rule will entail elimination from the Paris show, even if space has been allotted, or if the offense takes place after the Paris show the offender will be prevented from exhibiting in London and Milan and will be eliminated from subsequent Paris Salons.

### Small Makers Protest

The danger of this rule is that up to the present the National Federation has only approved the Grand Prix race, to be held at Strasbourg next July, and it threatens the existence of large numbers of smaller events and competitions which, while not of the same international importance as the big road race, are nevertheless valuable and constitute an excellent means of local publicity for the smaller firms. Under the rigorous application of this rule it would be impossible for any manufacturer to carry out a demonstration on Brooklands track, or on French roads, without first of all getting the permission of the National Federation. Many of the smaller and more energetic manufacturers intend to protest vigorously against this rule; they declare that they refuse to be put under the bondage of a few big, powerful firms, which have secured a position on the market and object to any newcomer making headway.

One center of resistance is at Le Mans, where the Automobile Club has always shown considerable initiative in organizing up-to-date races and competitions.

## Dealer View of Industry to Be Discussed at Atlanta Meeting

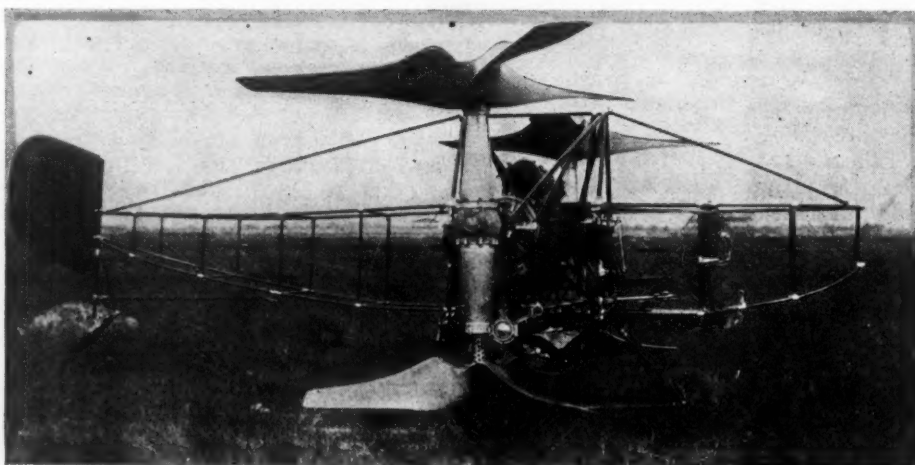
**Representatives From State of  
Georgia Plan to Attend Annual  
Gathering of Association**

ATLANTA, Jan. 8—Several hundred automobile and accessory dealers from Georgia are expected to attend the annual meeting of the Georgia Automotive Dealers' Association to be held here Jan. 26. The annual meetings of this association are the most important automobile meetings held in the state and since several matters of unusual importance are scheduled to come before this session officials of the association are confident it will be the largest gathering of automobile dealers that has ever been held in Georgia, and one of the largest in the South.

Directors of the association will meet Jan. 25 to formulate plans for presentation to the members at the general meeting the following day. Sessions are to be held at the Capital City Club.

Aside from a business program of considerable importance there will be addresses by several men prominent in the automobile industry or the commercial field. A. R. Kroh of the sales promotion department of the Goodyear Tire & Rubber Co. will speak on "Motorization of the Farm." R. H. Martin of the Southern Oakland Co. will speak on "The Status of the Industry, Present and Future, from the Dealers' Standpoint." Walter P. Chrysler, executive vice-president of the Willys corporation, will also address the meeting.

## This Machine May Revolutionize Aviation



Final secret tests have just been completed successfully on a flying machine invented by a Chicagoan that promises to revolutionize aviation. After sixteen years of experimenting by four members of the Leinweber family a screw propelled flying has been developed in which the lifting is accomplished by two pairs of horizontal blades revolving in opposite directions. Victor, Curtis, and William Leinweber, the three brothers, witnessed this triumph of science. Their father, Herman Leinweber, who originated the idea, never lived to see the invention perfected. Patents have been obtained from every country in the world protecting the secret which Daniel Roesch, professor of mechanical engineering at Armour Institute, says marks a tremendous forward step in the science of aeronautics. The machine is devoid of the fragile wings characteristic of airplanes. There are no wings to make large hangars and aerodromes necessary



## Concerning Men You Know

Allen C. Chambers, for three years sales manager of the Russell Motor Axle Co., tendered his resignation Jan. 1. He has announced no future connection.

W. E. Nutting has been made general manager of the Detroit Motor Parts Co., to succeed R. B. Merrill, resigned.

L. B. McEwing, manager of the wholesale department of the Reo Chicago branch organization, has been promoted to the position of general sales manager with jurisdiction over both retail and wholesale departments as successor to N. O. Gilbert, former retail sales manager who has resigned. P. A. Collins until recently identified with the Reo factory engineering department has been named service manager of the Chicago branch.

A. H. DuPuy of Bayonne, N. J., has become sales manager of the used car department conducted by Aaron G. Cohen, Hartford, Conn.

Harry A. Reed, for the past five years with the Hart-Parr Co., now in receivership, has become general manager of the Omaha Tractor & Supply Co., and is succeeded by C. A. Bishop, for the past two years divisional sales manager for the Hart-Parr Co., with headquarters at the factory in Charles City, Iowa. John P. Gregg has been appointed to the position of northwestern sales manager. C. L. Schnuerer, formerly with the sales department, has joined the forces of the East Iowa Hart-Parr Co. of Cedar Rapids, Iowa.

L. H. Van Briggie, president of the Van Briggie Motor Device Co., now in receivership, has been sued in the Indianapolis Circuit Court by William R. Hirst, receiver, to recover \$275,000.

Emil Ruppel, formerly in charge of the Cleveland office of the United States Tire Co., has been placed in charge of the Chicago branch.

L. G. Hartdorn has been appointed salesman of the E. G. Manufacturing Co., Inc., New York City, with Greater New York and Long Island as his territory. E. L. Pollak is now covering part of Pennsylvania, New Jersey, Delaware, Maryland, Virginia and the District of Columbia for the company.

Dorsey W. Hyde, Jr., has resigned from the transportation engineering division of the Packard Motor Car Co. to become assistant manager of the recently created civic development department of the Chamber of Commerce of the United States, Washington.

Thomas H. Bingham, for the past five years general superintendent of the Akron works of the International Harvester Co., has been appointed production manager, a newly created position, of the Matthews Engineering Co. of Sandusky, manufacturers of electric lighting plants.

H. B. Dinneen, formerly of the John Deere Plow Works with the title of manager and for the past year general trade manager of the Moline Plow Co., has been promoted to general manager in charge of manufacture. He has been succeeded as general trade manager by F. W. Edlin, formerly with the Deere company. A new division has been created and R. W. Lea placed in charge which includes the supervision of automotive products including trucks, automobiles and engines for the various units. Louis W. Fuller, late manager of the drill works of the Moline company at St. Louis Park, has been transferred to Moline to take charge of the agricultural department as manager.

Ferd H. Gibler has been elected general manager of the Salient Sales Corp., Freeport, Ill., which has control of the wholesale and retail distribution of the Stephens and the Scripps-Booth cars in the ten counties of northern Illinois and eastern Iowa. C. R. Roberts has been placed in charge of the service department.

Robert P. Hohmes, sales manager of the Standard Eight car at Boston, has been appointed on the staff of Gov. Elect Channing H. Cox.

E. S. Partridge, formerly Owen Magnetic and Liberty distributor in New York, has become New York branch manager for the American Motors Corp., manufacturers of the American 6.

W. J. Surre has become associated with the Seiss Manufacturing Co., Toledo, manufacturers of the Seiss horn.

000 is to be invested this year. Men and boys from thirty-two states of the Union attend the school and the waiting list of persons who cannot be accommodated under present conditions contains 300 names. New equipment has been added constantly until now the buildings are too small for the work of the school and next Fall will see accommodations for 500 students in this department alone.

### Truck Dealers Interested in Suit Brought to Reduce Fees

Cincinnati, Jan. 10—Motor truck dealers in this vicinity are manifesting considerable interest in a suit filed by a merchant in Covington, Ky., to enjoin officials from collecting from him a sum in excess of what would have been paid on a passenger car of the same horsepower as his truck. He has tendered a fee equal to the passenger car rate and secured from the court an injunction to prevent a collection of a higher fee until the case can be tried. Dealer interest has been aroused on account of the effect the case will have on the future of truck sales in Kentucky, parts of which are in the territory of Cincinnati truck dealers.

The Kentucky fees for passenger automobiles are 60 cents a horsepower and for trucks \$22 to \$150 a year according to the tonnage.

### Business in Salt Lake Region Looks Good for Coming Months

Salt Lake City, Jan. 8—Automobile selling prospects for the inter-mountain region for the next three months hold an even chance for a gain providing fairly good weather prevails. Thus far this winter there has been exceptionally good weather throughout the region. Motoring weather has assisted salesmen and sales reports are little below the average. With the approach of the Salt Lake 1921 Automobile Show, prospects are taking better form each day and with the possibility of an early spring increasing interest in the motor car is daily being evidenced throughout this territory.

Plans for the show are being laid by the Inter-mountain Automobile Trades Association and the Utah State Automobile Association. This is the first time in the history of the show that the Automotive Trades Association has loaned its active support to the effort. The show dates are Feb. 21 to 26 inclusive.

### ROCKFORD PLANNING SHOW

Rockford, Ill., Jan. 8—For the first time since the war and as an expression of confidence which local dealers feel in the 1921 automobile trade prospects, preparations are under way for an automobile show in February. The Shrine temple is favored but if it cannot be secured the dealers will lease the Armory. Fifty makes of cars are to be represented. C. W. Williams, president of the Rockford Automobile Trades Association, will announce his show commitments soon.

### Montana and Georgia Farmers Plan to Attend Tractor Show

Columbus, O., Jan. 7—Thousands of requests for complimentary admission tickets to the National Tractor Show, which will be held here Feb. 7 to 12 inclusive have been received by Manager E. E. Whaley. So far over 6,000 admission tickets have been distributed and others are being mailed at the rate of 500 daily. Letters are arriving from land owners, tenants and others inquiring about railroad rates and hotel accommodations. Many of the letters make inquiries concerning Ohio weather conditions in order to prepare for the journey. One woman writes from Montana that she operates four tractors and will attend the show to see what new makes have been developed recently.

Special trains are being arranged for some sections. Farmers near Atlanta, Ga., have secured two special cars to be attached to a regular through train. An entire special train has been secured in Philadelphia for farmers of eastern Pennsylvania and adjacent territory.

### FORD DEALERS GIVE BANQUET

Boston, Jan. 7—The annual banquet tendered by Stanley, Harlow & Hamlin, Ford dealers at Charlestown, to 35 employees and the distribution of bonuses, was held last evening. Seated at the head table were Clarence S. Harlow, presiding officer; Vice President Herbert K.

Smith, who distributed the bonuses to the amount of \$1,000 in gold pieces and bankbooks with a deposit credited to employees; H. S. Olcott and W. H. Preston, Jr., who represented the Ford Motor Co.

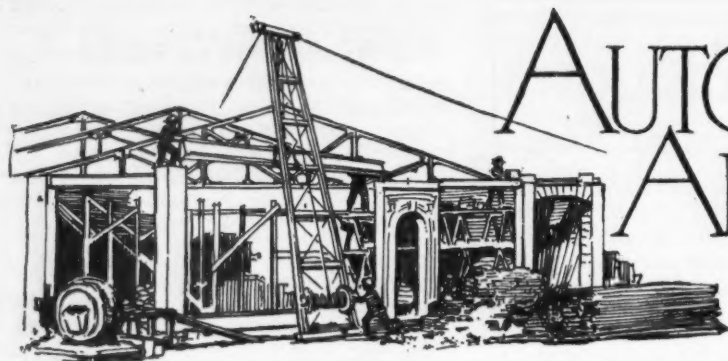
### DRAWING FOR BALTIMORE SHOW

Baltimore, Jan. 6—Local dealers will draw for space at the 1921 show on Monday, Jan. 3. This year 48 dealers will participate in the show, which is held under the auspices of the Baltimore Automobile Dealers' Association, representing approximately 65 different makes of cars. In addition to passenger cars there will be an exhibition of accessories, 50 spaces being set aside for that purpose.

### Mechanics' School Outgrows Its Present Accommodations

New Orleans, Jan. 8—So great has been the growth of the automobile mechanics' school at Loyola university, this city, that N. L. Bird, dean of the department, has announced that a modern three story concrete building, fully equipped for all forms of automobile repair and reconstruction, will be erected by the university. More than 200 students are now at work in the school as compared with eight when the department was founded eighteen months ago.

Not only has the department grown and prospered but is now to be made the nucleus of the engineering department of the university, in which about \$500,-



# AUTOMOTIVE ARCHITECTURE

Planning and Building Problems



CONDUCTED BY TOM WILDER

## GIVE US LIGHT!



There is no better means of getting cheerful efficient service from employees than by administering copious bunches of good fresh daylight. There is no better way of administering said copious bunches than by the use of windows such as these. Broad and high openings of this character let in all the light there is. The Fenestra window here shown is one of many making almost continuous glass walls of the Cross-town Corporation's new "Daylight Garage" located in Detroit. Windows such as these are regular equipment on all up-to-date manufacturing buildings and garage builders should remember that their shops, at least, are in effect, factories and need all the light they can get

### Automotive Architecture

IN this department MOTOR AGE aims to assist its readers in their problems of planning, building and equipping, service stations, garages, dealers' establishments, shops, filling stations, and in fact any buildings necessary to automotive activity.

When making requests for assistance please see that we have all the data necessary to an intelligent handling of the job. Among other things we need such information as follows:

Rough pencil sketch showing size and shape of plot and its relation to streets and alleys.

What departments are to be operated and how large it is expected they will be.

Number of cars on the sales floor.

Number of cars it is expected to garage.

Number of men employed in repair shop.

And how much of an accessory department is anticipated.

We suppose that eventually you plan to cover the entire lot and in that case probably the best course would be to build a strip along the west side of the lot or in the northwest corner with a permanent wall on the left and everything else permanent except the east wall. If you can afford to build either the whole front or the front on the side street, that would be still better as it would make a better looking job; then you could expand back or toward the inside.

If the section (A) is built first there need be little or no waste because this space could later all be used as a shop and the partition could be permanent. Next year perhaps you would be able to build section (B) and the following year the open court between the two sections could be roofed with trusses giving a fine large garage.

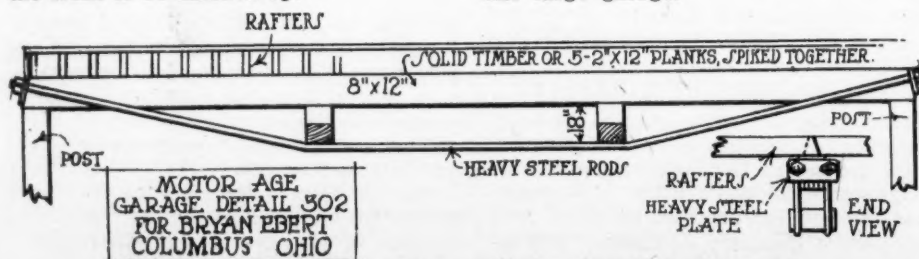
### No. 301 RESIDENTIAL GARAGE

The building we are now in is a two-story brick building, 40 by 60 ft. and is not satisfactory, as to size, arrangement and location. We are very anxious to build even a temporary building on the corner and we would appreciate any suggestions you might have.

Please bear in mind that our available capital is very limited, and that we must, of necessity, build the smallest and cheapest building, practical for the purpose. We should have room for about ten cars including those on which we are working, a small office and accessory store, and a gasoline and oil station. Inasmuch as we are located in a residential district, the front of the building must be somewhat attractive. — Wisconsin Reader.

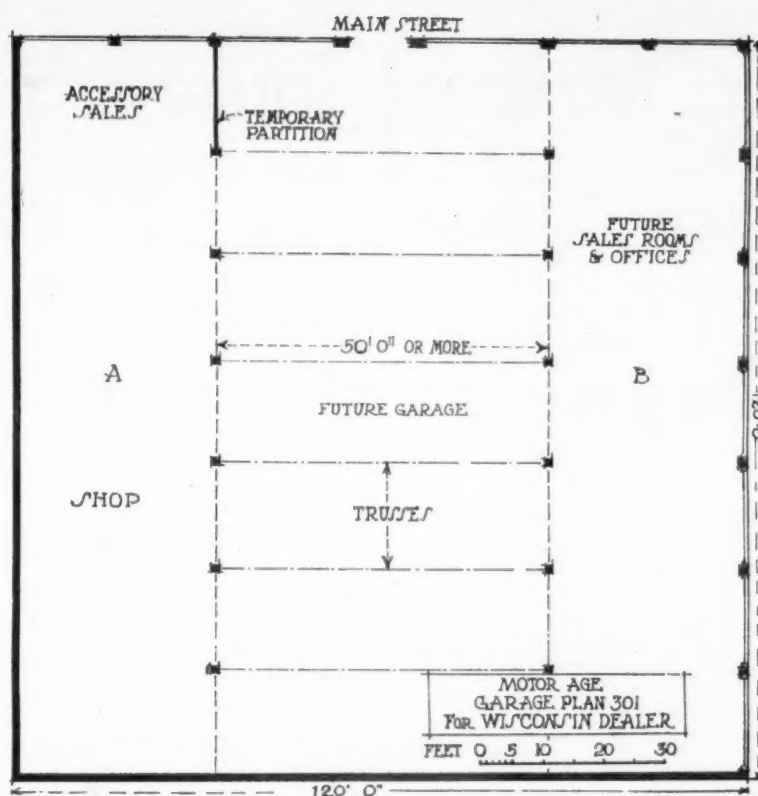
We hardly know what to advise in your case. If you erect a temporary building it will cost you more in the end than

a good one, as your first building will be almost a total loss. If you build a section with the idea of adding to it later the first cost will be higher or at least more than you care to invest at first. If you want an accessory store you must necessarily build up to the frontage line and that would call for a part of the front to be finished up.



No. 302—Method of reinforcing a beam through the center





Preparation must be made beforehand if anything of this sort is contemplated, and it would simplify matters to have the whole building planned before you

start. Then there would be no lost motion and no waste of material and labor.

We will not carry this plan out any further at present, but if you will give

us a definite plan of procedure we will be glad to help you map out the successive steps.

## No. 302

### SMALL REPAIR SHOP

Please give suggestions as to the best way to build a small repair shop large enough to handle four cars. The building can be 25 ft. long and 30 ft. wide with four doors in front.

About what would be the price in cement block, tile block and lumber? Could I get away from having any posts in the middle without using a steel girder?—Bryant Ebert, 1087 Chittenden Ave., Columbus, Ohio.

It is impossible to give you any definite information on relative cost of the different materials. Prices vary so much in different sections and are so unsettled at present.

Your general layout is alright, but we think you should make your windows higher so that the light will get further into the center of the room. Make them 3 ft. by 6 ft. at least, and 4 or 5 ft. by 6 ft. would be better.

We show a method of reinforcing a beam through the center either way which we have seen used to good advantage. You can place this in the center either across or from front to back. The latter method would be the shortest and therefore, preferable. If your walls are masonry they will carry this beam, but if you use frame construction you must support it on some strong posts, as this beam will support one-half of the roof.

No. 301. Section A to be built first and later to be used as repair shop when section B is added

## A Rest Room as Part of Your Service

THE feature on the Simons-Wiles Motor Co., Kansas City, Mo., sales floor, is a waiting room for service customers and for owners.

The room is as exclusively for owners of cars as though it were in the garage, or on the service floor of the building. No prospects are admitted there; only people who have come to talk about the cars they have, to wait while cars are serviced, or to discuss service.

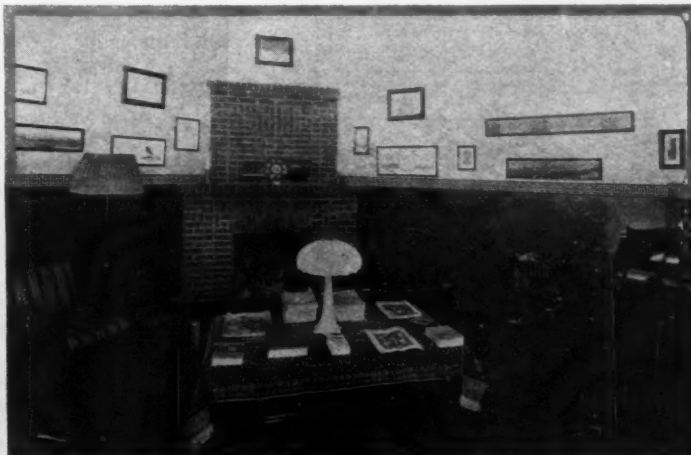
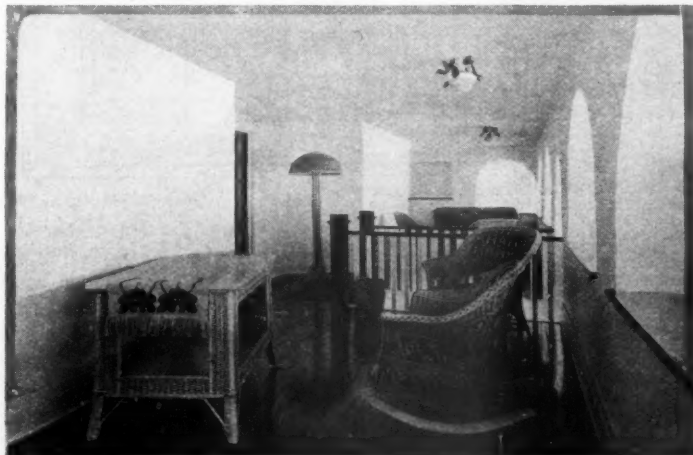
In a corner of the room is a brick fireplace, with a wood fire. Real bricks, real wood, real fire. In front of the grate, facing it, is a settee, where two or three persons, one of them a Simons-Wiles representative, may talk of service

under the pleasantest possible conditions. The room has other chairs; six or eight persons can be accommodated in the room at one time. There is a writing desk, with stationery; a table with lamp and magazines; handsome rugs on the floor, and interesting pictures, mostly of aviation and automobile subjects, on the walls.

The room is a place for customers to wait while cars are going through the shop, or until cars left a few days before, can be brought down, or a woman owner can be comfortable and enjoy herself and the minutes pass quickly until her car is ready. The woman owner ap-

preciates the seclusion from the publicity of the show room, where she would be observed not only by employees and other visitors, but persons passing along the street, and she need not feel that she is intruding on the semi-privacy of an office.

At the left is a well arranged rest room in the salesroom of the Pierce Automobile Co., Minot, N. D. Simplicity and the cheerfulness of bright walls are the main qualities. This rest room is kept spotless and leaves a favorable impression on the customers' mind when their comfort is looked after in this manner.



# The Readers' Clearing House

## Questions and Answers.

### Recharging Magneto Magnets

**Q**—Would you please inform me how to construct a remagnetizer, for remagnetizing magneto magnets? State size and amount of wire to use for best results, also size and material most suitable to use for core. Will use a 6-8 volt storage battery as source of current for remagnetizer. Give the best method of procedure in magnetizing the magnets. How long does it require to remagnetize each magnet?—Ralph Mummert, Walton, Ind.

The permanent magnets of ignition magnetos in the course of time become weakened, with the result that the engine will misfire at low speeds. Inasmuch as misfiring at low speed may be due to other causes than weakness in the magnets, it is best, if the latter trouble is suspected, to determine the length of spark the magneto will develop in the atmosphere. If it does not produce a spark at least  $\frac{1}{4}$  in. in length it is a sign that the magnets are weak, and it is then advisable to remagnetize or recharge them. Generally the magnets are taken from the magneto.

A recharger in the form of an electromagnet, to which the magnets can be applied may be used. This can be energized either from direct current service mains or from a 6-volt storage or dry cell battery. A design for a magnet recharger is shown in Fig. 1. The

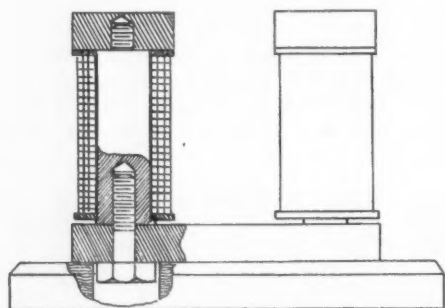


Fig. 1—Sectional view of a magnet recharger

limbs of the magnet are made of soft steel 1 in. in diameter and 3 in. long. They are secured to a base measuring  $5\frac{1}{4} \times 1\frac{1}{2} \times \frac{5}{8}$  inches and are provided with pole pieces measuring  $1\frac{1}{4} \times 1\frac{1}{4} \times \frac{5}{8}$  in. All contacting surfaces should be machined absolutely flat and square so that there will be good metallic contact over the entire surfaces.

Before the wire is wound on the mag-

CONDUCTED BY ROY E. BERG  
Technical Editor, Motor Age.

#### The Readers' Clearing House

**T**HIS department is conducted to assist Dealers, Service Stations, Garagemen and their Mechanics in the solution of their repair and service problems.

In addressing this department readers are requested to give the firm name and address. Also state whether a permanent file of MOTOR AGE is kept, for many times inquiries of an identical nature have been asked by someone else and these are answered by reference to previous issues. MOTOR AGE reserves the right to answer the query by personal letter or through these columns.

### ELECTRICAL

nets the latter must be insulated. A sort of spool is formed on them by means of two fiber rings, and in this connection it is best if the magnet cores are turned down from a diameter of  $1\frac{1}{8}$  inches and a thin collar is left on them at one end which supports the fiber ring at that end, the other ring being supported by the pole piece. The core between the fiber rings is then wrapped with several layers of muslin which is given a coat of shellac in alcohol and allowed to dry.

The winding to be applied depends upon the voltage of the source of current to be used. For a six-volt battery wind on three layers of No. 12 double cotton covered magnet wire; for a 110-volt circuit, eight layers of No. 22 double cotton covered magnet wire. The ends or leads of the wire are taped and the outsides of the coils shellaced to make their exposed cotton insulation more enduring. Mount the whole on a wooden base which also carries a single pole, single throw knife switch and a binding post. Connect the two coils together so that if the current flows through one right handedly it flows through the other left handedly (both looked at from the top). Connect one free end of the coil to one terminal of the switch and the other to the bottom of the binding post on the base. The current source is con-

nected to the other terminal of the switch and to the binding post. (See Fig. 2.)

In recharging the magnets it is important that they be applied to the recharger with unlike poles together, that is, north pole of magnet to south pole of recharger and vice versa. Since like poles repel and unlike poles attract each other, the magnet finds its own position if freely held a short distance above the recharger poles, while the current is switched on.

In recharging, set the magnet on top of the charger and switch on the current, rock the magnet back and forth on its pole edges a number of times, then lay it on its side with the poles away from you and extending just beyond the far edges of the recharger poles, apply a keeper to the pole pieces, switch off the current and withdraw the magnet sideways from the recharger. The keeper should remain in place till the magnets are again applied to the poles of the magneto.

The windings specified above will heat up quickly when connected to current sources of the voltage mentioned, and the switch should never be left closed for more than a few minutes at a time.

Where direct current mains are accessible the magnets may be recharged without demounting them. The wire

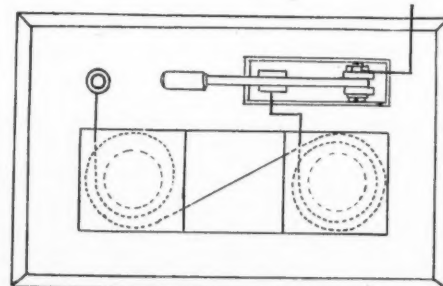


Fig. 2—Diagram of the connections of the coils and the switch of the magnet recharger

must then be wound directly over the magnets, and lamp cord is probably best for the purpose, as it is very flexible and well insulated. The bared ends of the cord should be twisted together so that the two strands form one conductor. Wrap on about 50 turns and connect the



wires to the main switch of the installation through a 10-ampere fuse. A very intense current will flow through the wire for an instant, until it is stopped by the blowing of the fuse. Particular care should be exercised to so make the connections that the magnets will not

have their polarity reversed, for with a given magnetizing force the remanent magnetism will be greater if the polarity is not reversed. This method obviates the necessity of taking the magneto apart and undoubtedly involves the least amount of labor.

## Operation of Remy Multiple Thermostat

Q—Publish a diagram of Remy multiple thermostat showing how it is connected to the generator and explain how it operates.—John Venice, Bismark, N. Dakota.

A. The multiple thermostat consists of two rectangular steel brackets each carrying two silver contact points and four spring blades and each carrying at its free end a silver contact point which, when the thermostat is cold, makes contact with the four points in the steel brackets. The two steel brackets are mounted side by side on the generator commutator cover in a position directly above the commutator and are insulated from each other. The spring blades are riveted to the steel brackets through insulation washers. The spring blades are constructed and connected in the form of a grid in such a manner as to provide a continuous path, through each blade in turn, for the current flowing from the generator to the storage battery. (See wiring diagram, Fig. 3.)

The blades consist of a strip of spring brass welded to a strip of nickel steel, a combination which warps at its free end when heated, due to the greater expansion of the brass side. The spring tension of the blades is so adjusted that, at low temperatures it holds the four

sets of contact points firmly closed, but as soon as the temperature rises to approximately 190 degrees F. the blades warp and separate the contacts.

The four silver points mounted on the spring blades are insulated from the blades but are connected by means of metal ribbon conductors to the ends of four resistance wires. These resistance wires are wound in parallel turns on the two mica strips mounted above the steel brackets. One end of each of the four resistance wires is connected through the metal of the bracket to one of the four points mounted on the brackets. These connections are so made that full field current of the generator may pass in turn through all four sets of contact points. If, however, one set of contact points is open, the field current must pass through one-fourth of the resistance, and the output of the generator is thereby reduced. If two sets of points are open, the field current must pass through one-half of the total resistance, and so on until the total resistance is inserted in the field circuit, if all four sets of contacts are open.

The action of the multiple thermostat in its position over the commutator is influenced by the temperature existing outside the generator as well as by the heat developed inside the generator. Furthermore as stated in a preceding paragraph, the current which flows to the battery from the generator must pass in turn through each of the spring blades, and due to the resistance of the metal of the blades a certain amount of heat is developed in them.

In its effect on the battery charging rate the action of the multiple thermostat is as follows: When the generator is cold, the thermostat contact points are closed and the current output will rise very rapidly as the car speed increases. Due to the heavy current flowing through the thermostat blades, the temperature rises quickly to a degree which one set of points will open. If driving is continued a second set and later a third set of points will open after a period of time, depending on the prevailing atmospheric temperature, the speed and the duration of the drive. This brings about a further reduction in current. The effect of the fourth set will be noticed only in summer weather or on extended tours, when the charge rate must be extremely low in order to properly protect the battery.

At certain car speeds and under some atmospheric conditions the multiple-thermostat points will close and re-open at such frequent intervals that a pronounced fluctuation of the ammeter will be noticed. However, this should be no cause for alarm. The functions of the control thermostat resistance unit are

duplicated by the thermostat regulator resistance.

Thermostat regulator adjustment and care. The multiple-thermostat is adjusted at the Remy factory and will not require adjustment at frequent intervals during the life of the car. An inspection of the contact points should be made every 1000 miles to insure that they are clean and smooth. If the points require cleaning this must be done with a thin sheet of No. 00 sandpaper and the points must not be opened more than necessary to insert the paper; further, excessive cleaning will wear the points away and spoil the adjustment. A point file must never be used. Blow out all sand and grit.

The multiple-thermostat is substantially made to withstand the most severe vibration without impairing its operation, but its accuracy would surely be destroyed by prying the contacts apart.

If the generator fails to charge the battery, first be assured that the relay is not at fault and that there are no loose connections in the circuit from generator to battery. The screws in the grounding connector between the base of the multiple-thermostat and end plate of the generator must always be tight to prevent an open circuit.

The thermostat cover can be removed for inspection of the resistance units. (See Fig. 5.) In order that all circuits through the thermostat may be complete, the screws "C" and the six nuts "D" must be tight. To remove the resistance units for thorough inspection, loosen the six nuts "D." In handling the resistance units care must be taken so that the coils of wire are not moved from the proper notches.

With the resistance units removed, the armature and field leads from the generator can be disconnected from the

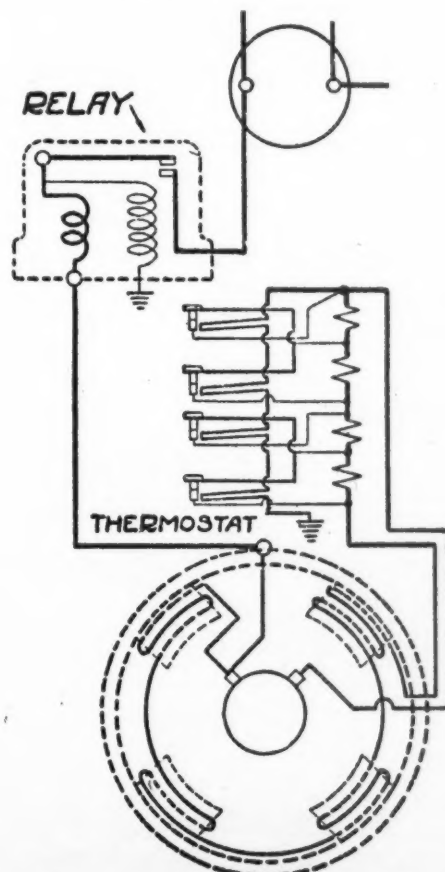


Fig. 3—Internal connections of the Remy Multiple Thermostat

## Where You Will Find the Answer to Your Inquiry

To assist readers in obtaining as a unit all information on a certain subject, MOTOR AGE segregates inquiries in this department into divisions of allied nature. Questions pertaining to engines are answered under that head and so on.

### Electrical

Ralph Mummert.....Walton, Ind.  
H. E. Mitchell.....Burlington, Colo.  
Frank Bell.....Bellaire, Ohio  
Nic Bredar's Sons.....Rock Island, Ill.  
John Venice.....Bismarck, N. D.

### Carbureters

Royal H. Warinner.....Lincoln, Minn.  
J. Blake Hedges, Nara Hotel, Nara, Japan

### Engines

John Venice.....Bismarck, N. D.  
C. Stephan.....Andrews, Ind.  
Central Garage.....Prospect, Ohio

### Miscellaneous

Clifton B. Norris.....Willow Shade, Ky.  
John Venice.....Bismarck, N. D.  
William L. Spieler.....Caldwell, Idaho





**ELCAR WIRING DIAGRAM**

Q—Publish wiring diagram for Model "A" Elcar 1916 car.—Nic Bredar's Son, Rock Island, Ill.

Shown in Fig. 4.

**REVERSIBLE POLARITY**

Q—Does the generator used on the 1917 Dodge car find its own polarity regardless of the connections from generator to battery?—John Venice, Bismarck, N. D.

The Northeast Model G starter-generator is capable of automatically adapting its polarity to that of the external circuit. This is due to the fact that the machine, while operating as a generator, is differentially compounded; and, as a result, the generating field, which is ordinarily maintained by the shunt coils, can also be properly established by the momentarily heavy discharge current through the series coils in instances when the external polarity has been changed. Although the system will be operated equally well on the car with the battery connections normal or with them reversed, in the latter case the charging indicator will be caused to give reverse readings which may mislead the driver into believing that the system is out of order.

**CIRCUIT BREAKERS**

Q—What is the purpose of the vibrating circuit breaker and locking circuit breaker used on 1919 Cadillac?—John Venice, Bismarck, N. D.

The circuit breakers used, are protective devices which take the place of fuses. The circuit breakers prevent the discharging of the storage battery, damage to the wiring, to the horn, lights, and ignition apparatus, in case of any of the circuits become grounded.

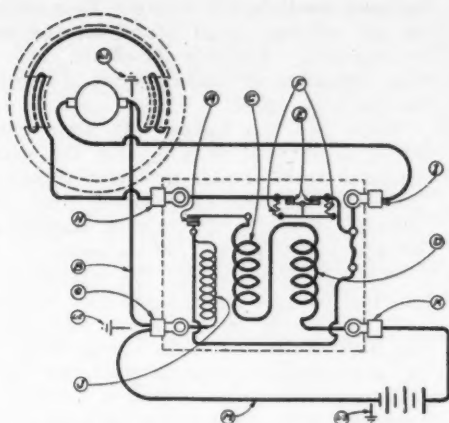


Fig. 7—Diagram showing the internal connections of the Remy Relay Regulator

As long as the normal amount of current flows through any of the circuits the breakers will not open. In the event of a ground, which causes a heavy flow of current through the breaker, a strong magnetic field which is set up attracts the armature and opens the circuit. This of course cuts the flow of current. The circuit breaker which protects the horn, handy lamp, and tonneau lamp circuit is known as the lockout circuit breaker.

In case of a ground this breaker will open and remain open until the ground is removed. The circuit to the ignition apparatus and the remainder of the lights is protected by a vibrating type breaker. In case of a ground, the breaker will start to vibrate and will continue to vibrate until the ground is eliminated.

## CARBURETERS

**KINGSTON ADJUSTMENT**

Q—Can get only ten miles per gallon of gasoline from 1917 Ford touring car equipped with model L-2 Kingston carburetor. What is the cause?—Royal H. Warinner, Lincoln, Minn.

This low mileage is probably due to lack of proper adjustment of the carburetor more than anything else.

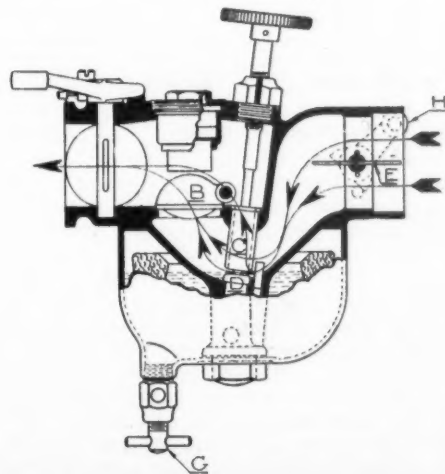


Fig. 8—Sectional view of the Kingston carburetor L 2 for Fords

However, poor functioning of the ignition system and worn valves may have a decided effect on the fuel economy. A sectional view of the model L-2 Kingston carburetor is shown in Fig. 8. To adjust, retard the spark fully. Open the throttle about 5 or 6 notches of the quadrant on the steering post. Loosen needle valve binder nut on carburetor until the needle valve turns easily. Turn needle valve (with dash adjustment) until it seats lightly. Do not force.

Adjust away from the seat one complete turn. This will be slightly more than necessary but will assist in easy starting. Start engine and open or close throttle until the engine runs at fair speed, and allow it to run until thoroughly warmed up. Now make the final adjustment—the needle valve. Close the throttle until the engine runs at idling speed. This can be controlled by adjusting the stop screw in throttle lever.

Adjust the needle valve slowly towards its seat until the engine begins to lose speed which indicates that the mixture is weak. Now adjust the needle valve away from its seat until the engine runs smoothly. Close the throttle and then

open it rapidly. The engine should respond quickly and smoothly. When the adjustment is completed, tighten binder nut until the needle valve turns under tension.

**ZENTH CARBURETOR ADJUSTMENT**

Illustrate and describe adjustments of a Zenith carburetor as used on a Scripps-Booth four cylinder roadster, either a 1916 or 1917 model, car number C 8134.—J. Blake Hedges, Nara Hotel, Nara, Japan.

The engine is equipped with a Zenith carburetor.

To take the carburetor apart first remove float chamber. Swing the spring catch and lift the float cover by the knurled edge; lift straight. The float can be removed easily with a match inserted in the center hole, or a piece of wire bent at the end. Avoid bending the needle valve in re-assembling.

Next, Butterfly Throttle. The butterfly throttle is fixed to the shaft by a set screw. In re-assembling, hold the butterfly in the carburetor in closed position, covering the priming hole, and the set screw towards the flange of the carburetor; insert butterfly shaft and lever, bring it to the closed position, and tighten set screw. It is important, before tightening, to be sure that both the throttle and the lever are in closed position.

Next, in the vertical type "L" and "O" carburetors, the choke is held in place by a screw, tapped in the choke itself. A lock washer is provided to prevent this screw from jarring loose. To remove the choke, the butterfly must first be removed. The horizontal carburetors are made in two pieces held together by an assembling nut. When these pieces are taken apart, the bowl from the barrel, the choke can easily be slipped out of the barrel.

Next, to take out a jet unscrew lower plug L. In re-assembling, make sure that the fibre joint is on the jet and screw jets back tight, otherwise gasoline

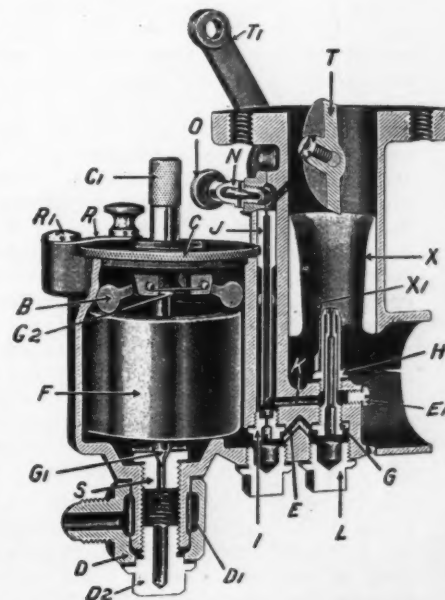


Fig. 9—Cross section of the Zenith carburetor used on the 1917 Scripps-Booth 4-cylinder model

may leak around the threads. Do not put more than one washer on any jet.

Adjusting the carbureter. In the Zenith, the composition of the mixture is fixed, once for all, by the choking of the three variables; choke tube, main jets, compensator, according to the following indications. The size number of these three parts constitute what is called the "Setting."

Next, Variable I—Choke Tube X. This is really an air nozzle, of such a stream line shape as to allow the maximum flow of air, without any eddies, and with the least resistance.

Choke Tube Too Large. The pick-up will be defective and cannot be bettered by the use of a larger compensator. Slow speed running will not be very smooth.

Choke Tube Too Small. The effect of a small choke is to prevent the engine from taking a full charge with the throttle opened fully. The pick-up will

be very good, but it will not be possible to get all the speed of which the car is capable. Variable II—Main Jet G. The influence of the main jet is mostly felt at high speed.

Main Jet Too Large. At high speed on a level road it will give the usual indications of a rich mixture; irregular running, characteristic smell from the exhaust, firing in the muffler, sooting up at the spark plugs, low mileage.

Main Jet Too Small. The mixture will be too lean at high speed and the car will not attain its maximum. There may be back-firing at high speed, but this is not probable, especially if the choke and main jet are according to the factory setting. This back-firing is more often due to large air leaks in the intake or valves or to defect in the gasoline line.

Variable III—Compensator I. According to the principle of operation the influence of the compensator is most

marked at low speeds. The compensator size is best tried out on a hill, as regular as possible and as long as possible, and of such a slope that the engine will labor rather hard to make it on high gear. A long, even, hard pull of this sort taxes the efficiency of the compensator to the utmost, and will indicate readily the correctness of its adjustment.

Compensator Too Large. Too rich a mixture on a hard pull. It will give the same indication as for rich mixture at high speed on the level. Compensator Too Small. Too lean a mixture. Liable to miss and give a jerky action in the car, on a hard pull. Remark. These tests should be made with method, starting with the setting in the table, determining the main jet, then the compensator, then the choke. Bear in mind that when the choke is increased the main jet should be increased.

## Locating Engine Troubles

### SHOOTING TROUBLE

Q—When an engine runs perfectly and pulls very well with the car running in first speed, but misses badly or dies when running in high gear, what does it indicate? 2—If the engine idles well, but misses or dies as soon as it is placed under load, what does it indicate?—John Venice, Bismarck, N. D.

1—In the first place we shall assume that you refer to a condition where the engine is running at low speed and under load. In order to determine the location of the trouble it will be necessary to apply a process of elimination. Very often an engine will pull well at low speed and give pretty good acceleration, but when running along at higher speeds in high gear it will miss badly and sometimes die.

Examine the valves and check the valve timing. Next, check the ignition system carefully and see that it is properly timed. Missing under the conditions mentioned might be due to faulty ignition. Check the gap of the spark plug electrodes and see that it is set to about .025 in. Look over the distributor contacts and if battery ignition is used, test the storage battery. If magneto ignition is used missing at high speeds may be due to weak magnets or trouble at the platinum points. Check all connections of the manifold and the carbureter. If found tight proceed to make a careful check of the carbureter. Clean the carbureter and gas line and then adjust the carbureter. If missing still occurs check the float level as this may be the seat of the trouble.

2—Missing when the engine is placed under load may be logically attributed to carbureter trouble. Very often clogging of the gas line will not permit enough fuel to get into the carbureter to insure perfect operation of the engine. It is also advisable to check the valve timing. If the engine is timed

very late it may give in the action described but it is very probable that quite noticeable explosions will occur in the muffler.

### ENGINE MISSES

Q—On an Overland model 83, which will start fine, the engine misses at speeds over 20 m.p.h. Does not miss fire at any engine speed when running idle. Throw car in gear it will not miss fire until a speed of twenty to twenty-five miles per hour is reached. Machine will not miss when running ten to twelve miles per hour and seems to pull good when running at a speed of about ten miles per hour. This car has a Tilton carbureter and high tension magneto.—C. Stephan, Andrews, Ind.

It would be well to first readjust the carbureter as it is very possible that the mixture is too weak. It would be advisable to examine the platinum points. Very often the breaker points set too widely apart will cause the trouble. They should be cleaned and properly adjusted, so that when separated the distance between points will not exceed .02 in. There is a possibility that the vibration of the engine causes a short circuit at some point where the insulation is worn off when the engine reaches a certain speed. Examine the spark plug electrodes to see that they are cleaned and adjusted to a gap of about .025 in.

### ENGINE LOADS UP

Q—When my Buick is put on a long, hard pull it will load up and gallop when it lets up a little. The carbureter is set as lean as possible. The engine is in good shape.—Central Garage, Prospect, Ohio.

We have run across similar conditions at various times and in almost every instance the trouble was due to the fuel feed system. It is possible that in your case raw gasoline is being sucked into the engine through the vacuum pipe leading from the intake manifold to the top of the vacuum tank. Occasionally the small valve in the vacuum tank does not

function properly and when this happens you get exactly the actions you describe. Remove the top of the vacuum tank and examine the valve. Sometimes, too, the springs in the top of the tank lose their stiffness from the action of the gasoline and in this case new ones must be installed.

You can test out the vacuum feed by removing the top of the tank and taking out the float mechanism, etc., removing the suction pipe, plugging the hole in the intake manifold and then running the engine with the tank feeding the carbureter by gravity. If, when running this way the engine does not load it is an indication that the carburetion and other items of the engine are functioning properly and that your trouble is with the vacuum feed. As a rule the vacuum tanks are very reliable but occasionally one misfunctions.

### ESSEX TAPPET CLEARANCES

In the December 16 issue of Motor Age, on page 43, under the heading of "Oil Pressure" we advised that the Essex tappet clearance is .004 in. on the intake and .008 in. on the exhaust. We have been informed that the Essex company recommends some alterations and standard practice at the present time is to set the inlets .006 in. minimum to .008 in. maximum, and the exhausts .008 in. minimum to .010 in. maximum.

### VALVE INJURY

Q—Would Flexedge valves be injured in any way during the process of burning out the carbon?

1—Flexedge valves would not be injured if the job is properly done. When burning out the carbon it should be remembered that both valves should be closed. This being the case the valves will be seating correctly and the burning should not have any bad effects.



## MISCELLANEOUS

### CASE COOLING SYSTEM

Q—Explain why the valve below the bellows on the Sylphon Thermostat used on the Case Tractor 15 by 27, will not close enough to stop the flow of water as soon as the water reaches a temperature high enough to expand the bellows? The double seated valve opens as soon as the bellows expand.

Refer to Fig. 11 which is a sectional view of the thermostat used on one of the Case tractors. From your description we are inclined to believe that the valve is not seating perfectly because of sediment that has collected on the seat. We advise removing the hose connections and cleaning the thermostat thoroughly. It would be a good idea to clean the entire cooling system. The radiator and water jackets should be cleaned out at least once a year as dirt and lime deposit accumulate and clog up the passages so that the water circulation becomes impaired.

To clean the radiator remove the hose connections and flush it out by forcing water through it from the top to the bottom under pressure. Flush the cylinder jackets out in a similar manner, disconnecting the hose at the water pump so that the water may flow through without passing through the pump. Scale may be loosened up by filling the cylinder jackets and pipes with kerosene and allowing it to stand over night. Then start the engine and run until hot. After draining the kerosene out the engine should again be run until hot which will cause the scale to crack off.

It should then be thoroughly cleaned out by flushing with water under pressure. Remember that if the thermostat is removed it should be replaced in the correct position. The arrow cast on the side should point towards the pump.

### FORD TRANSMISSION

Q—Explain how to remove driven gear of a Ford transmission when tight?

2—What kind of a reamer should one use to line up the bushings in a Ford transmission?

3—How does the Ford company ream them?

4—How can the 1-2 to 3-4 in. play in the Ford transmission be remedied?—Clifton B. Norris, Willow Shade, Ky.

1—The transmission should first be dis-assembled so it will be possible to get the driven gear. This driven gear is pressed on the shaft over a key. The best method to use in removing this gear is to apply a gear or wheel puller. If an attempt is made to force it from the shaft by the use of a bar it will probably result in a bent shaft.

2-3.—The bushings can be removed by driving them out with a punch and hammer but it is more advisable to use an arbor press. If it is very difficult to remove the bushings, part of them may be cut out with a hack saw and the rest of the bushings can be removed very easily. When placing the new bushings it is not advisable to attempt to drive them in as the bushings are nearly always damaged when handled in this manner.

The bushings should be forced into place with a heavy vice or an arbor press. Forcing bushings into place usually contracts them so that it is necessary to ream them out. In many of the large Ford service stations the mechanics use a broach or drift to expand these

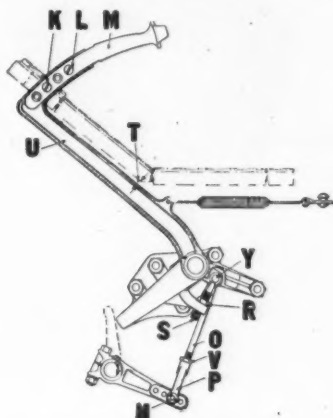


Fig. 10—1920 Cadillac clutch control mechanism

bushings to the proper size. This broach should have a taper about 3 in. long, and a straight section about 2 in. long to give a smooth finish to the inside of the bushing.

4—The play is a result of worn bushings and it will be necessary to replace them to remedy the trouble.

### CADILLAC CLUTCH ADJUSTMENT

Q—Give the adjustment of the 1920 Buick clutch.

2—Publish an illustration of the 1920 Cadillac clutch showing the points of adjustment.—John Venice, Bismark, N. D.

1—The adjustment of the 1919 Buick clutch was published in the Nov. 11 issue of Motor Age and the same instructions apply to the 1920 Buick clutch.

2—Fig. 10 shows the clutch control. After the car has been run for some time it may be found that the facings on the disks have become compressed or worn to some extent, and that consequently the clutch pedal strikes the stop screw before the clutch is fully engaged. When this condition exists a readjustment may be made as follows: Remove the pin (N) Fig. 10, and unscrew the yoke (P), which is threaded on the rod (O), so that when the pin (N) is replaced the clutch pedal has a movement back and forth of  $\frac{1}{4}$  in. without starting to release the clutch. Secure the pin (N) with a cotter pin and tighten the lock nut (V). The clutch and brake pedals are each made in two parts slidably adjustable to accommodate different drivers.

### CAM CONSTRUCTION

The difference in cam construction found in various makes of cars is the reason why the slightly different valve clearances are needed. If an intake valve on one car is to open at 10 deg. after the upper dead center and the

cam contour which begins the rise starts at 12 deg. after the upper dead center, the clearance would have to be slightly more in order to secure the right timing.

From this it may sound as though the cam shaft is made for one particular timing and that the valve clearances are made to change the valve timing to something else but this would not be a correct inference. Some engines have large exhaust pockets with very long valve stems and in these the clearances must necessarily be a little larger than in an engine having small valve pockets and short valve stems.

The difference in expansion of the longer valves with the varying degrees of temperature found in the different exhaust pipes is the difference for the variance in clearance. These clearances are then arranged to coordinate with the timing of the cam so that the valve will open at the correct place.—Mr. Harry Morikawa, Meridian, Miss.

### REDUCING FLYWHEEL WEIGHT

Q—Would there be any advantage in taking 10 lbs. off the flywheel of a 1912 Overland 51; the bore and stroke is 4 $\frac{1}{2}$  by 4 $\frac{1}{2}$ .—William L. Spieler, Caldwell, Idaho.

We can see no advantage to be gained by reducing weight of the flywheel. To do so would make the engine less stable in its operation at slow and idling speeds. The flywheel is proportioned by the engineer who designs the car to have sufficient inertia to carry the pistons up on their compression stroke without materially reducing the speed of the engine. Consequently, lightening the flywheel will reduce the inertia of this member so that its momentum will hardly carry the engine by the compressive strokes without displaying a faltering action. If anything must be done we would recommend making the flywheel heavier which will add greater stability to the engine operation.

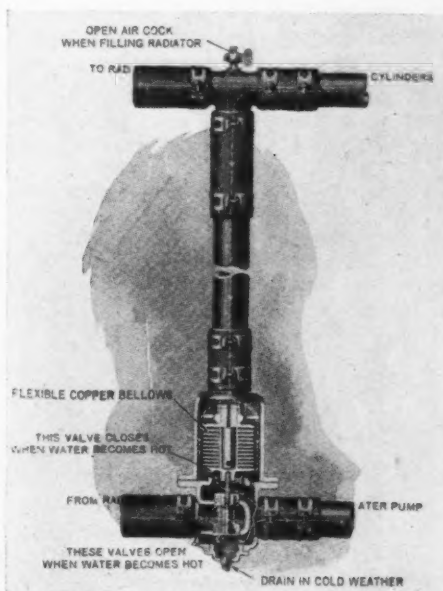


Fig. 11—Sylphon thermostatic regulator applied to the Case tractor showing the path of circulation of the cooling water

# The Accessory Show Case

## New Fitments for the Car

### Green Auto Lock

The Green lock fits on the wheel of a car, going around the rim and tire and also clamps around the spoke. It is claimed to be absolutely impossible to move this lock or to minimize its effectiveness by deflating the tire, as the grip on the spoke can neither be shaken nor loosened. This grip keeps rigid the arrow-arrangement, which, protruding outwardly from the wheel, acts as an effective barrier to driving the car away. Another feature of this lock is its conspicuousness. It is painted a dragon-fly green, attracting attention even when it is on the tire. The Green lock is made of a tough malleable material. The locking mechanism is of a special patented tumbler cylinder type. Green Lock Co., Detroit.

### GreesGun

Among the new accessories is the GreesGun, a lubricating device manufactured by the Ireland & Matthews Mfg. Co., Detroit. It is drawn from steel and finished in nickle. The cap is at the lower end, so the gun can be filled by the piston action like an oil gun. The lower part of the gun swings through almost a full circle, making it possible to get into out of the way places. The capacity of the gun is sufficient for a number of greasings. It is provided with a check valve, which is claimed to add much to the speed and cleanliness of the greasing, and make it impossible for the for the gun to leak.

### Bestofall Timer

The Bestofall Timer is designed for the Ford car, truck or Fordson tractor. The shell is of pressed steel lathe turned on the edge, provided with a quick action



Warn-O-Meter

sults, according to the claims of users. Manufactured by the Damon Mfg. Co., 901 Rust St., Chicago.

### Warn-O-Meter

The purpose of this device is to eliminate as much as possible engine troubles which result from over-heating. Fitted to the radiator cap or front fender, the Warn-O-Meter is wired back to a thermostatic unit attached to the engine. Concealed in the instrument are two small light bulbs. At normal temperature a steady green light shows. Should the cylinders become dangerously hot due to a broken fan-belt, clogged water pipe or other trouble, the thermostat automatically switches on a red light to warn the motorist. In the reverse side of this meter there is fitted a transparent design of attractive colors which is illuminated by the light within the instrument. Stewart-Warner Speedometer Corp., Chicago.

### Kant-Skore Piston

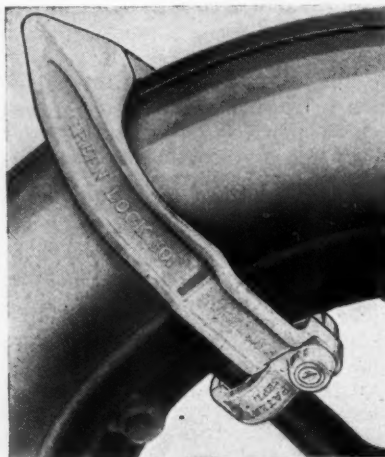
Several advantages are claimed by the manufacturers for the Kant-Skore alloy pistons among which are their light weight, the fact that expansion is taken up within the piston itself, by means of spiral slots, and unusually good compression. The slots are placed in that part of the piston where the diameter is greatest. The chamber just below the third piston ring is tapered. By this arrangement, as the excess oil is scraped off the cylinder wall, it runs freely down into the spiral slots and back into the crank case. It is said these pistons cannot expand toward the cylinder wall, and therefore, make it impossible to score the cylinder. The Kant-Score pistons come ready to install, and are made for most standard makes of cars. Kant-Skore Piston Co., Buffalo, N. Y.

### Damon Polish

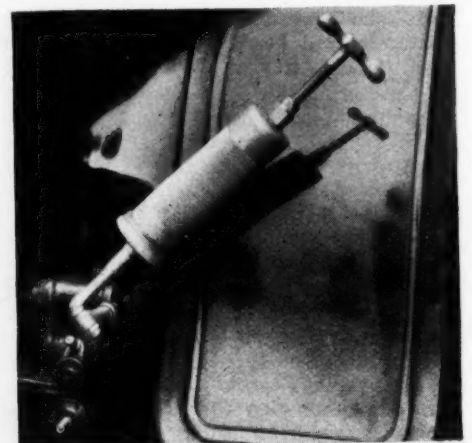
This polish, called the "999" Patent Polish and Wax, is said to be satisfactory for Simonizing work on cars, and for renewing the polish on jobs where the varnish is dull. It is especially desirable for used cars, as it cleans and polishes these cars with very good re-



Kant-Skore Alloy Piston



Green Auto Lock



Grees Gun



# Service Equipment

## Time Savers for the Shop

### Engine Block Support

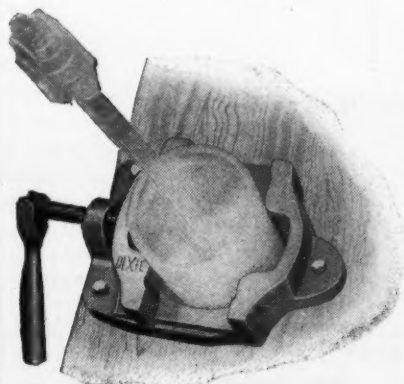
This device consists of a solidly constructed socket which may be attached to a work-bench or other support and a support arm which fits into it. The support arm is bolted to the engine on which work is to be done by the exhaust water pipe bolts. The pin in the end of support arm is slipped into the crankcase bolt hole and acts as a guide only. The spindle end of the arm is then slipped into its bearing box and bolted to the bench. The engine is then entirely supported by the spindle arm and revolves upon it. It can be turned to any position convenient for the work being done and is rigidly held there by tightening one screw. The support arm is 3 in. longer than the bearing box which allows the magneto to clear the bench when turning the engine from one position to another. Dealer's price \$10.

### Adjustable Piston Vise

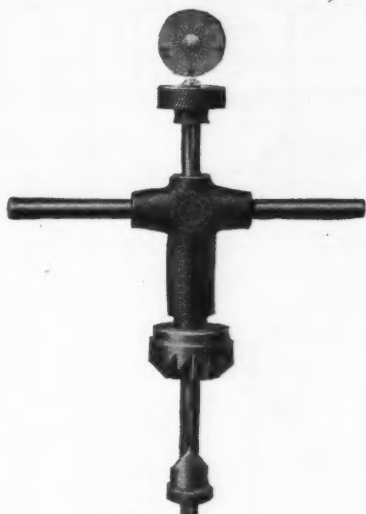
This tool is said to remove the difficulty experienced in handling piston jobs after the pistons are removed from the engine. It fills the need of having some means of holding a piston firmly so that it may be worked on and yet hold so as to not spring the piston or mar its walls. The Dixie vise is equipped with four lugs so placed as to divide pressure equally on the piston, eliminating the possibility of springing it. The two lugs are movable so that vise may be adjusted to any size piston from 2½ in. to 4½ in. diameter which includes all standard makes of automobiles, trucks and tractors. Dealer's price \$7.50.

### Valve Facing Tool

One of the most important uses of this tool is for determining the accuracy of a new valve before installing. By means of this tool it is claimed a crooked stem is immediately detected, eliminating the possibility of placing it in the engine.



Adjustable piston vise



Valve seating tool

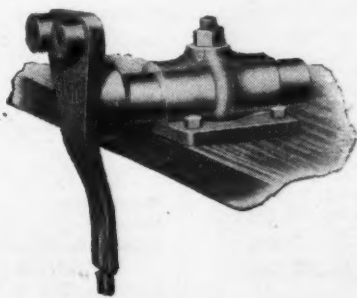


Transmission wrench

The tool acts on the same principle as the tool in a lathe except that the entire tool revolves instead of the valve. The feed screw has a micrometer adjustment enabling the operator to cut any amount desired and calculate the adjustment necessary on the cam end of the valve stem. Dealer's price \$5.

### Offset Wrench

The Dixie offset wrench simplifies the job of removing the nuts on the fourth connecting rod of a Ford car. The wrench has a gear ratio of 12 to 18, giving a 24 in. leverage. It can also be used for removing or tightening connecting rod bearing nuts. For this work the tool reaches up into the crankcase with the socket end, which slips over the nut. Thus the nut can be applied or removed without danger of losing it. This tool is especially adapted for Ford crankshaft bearing work, but can be used for other purposes as well. Dealer's price \$4.



Ford motor block support

### Dixie Valve Seating Tool

The purpose of the Dixie valve seating tool is to ream the valve seat in the motor block to a perfectly accurate angle with the valve face. To use this tool the valve stems are removed from guides in the motor block and the stem of the tool is inserted. It is held stationary in that position by means of the sleeve lock at the bottom and a micrometer feed screw at the top of the tool. The stem of the tool then occupies the normal position of the valve stem and the reamer rests on the valve seat in normal position of valve face. By adjusting the micrometer feed screw, which is a feature of this tool, to the depth of cut desired, the reamer is forced down against the valve seat at the correct angle. The reamer is held firmly by the stem and it is claimed revolves always at a true angle with no chance of chattering valve seat. The 45 deg. reamer is standard and is regularly furnished with this tool. Reamers at any other angle can be obtained at a small cost. Dealer's price \$5.

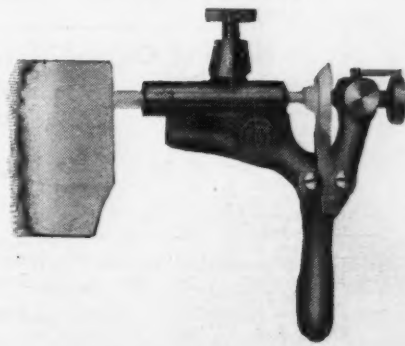
### Transmission Wrench

The inconvenience of reaching for each separate tool required for removing the transmission from a Ford is eliminated by using this transmission wrench which is a combination of all the tools necessary for this work. This wrench can also be used for other purposes as the wrench sizes are standard. Dealer's price \$1.

These tools are all manufactured by the Southern Machine & Tool Co., St. Louis, and distributed by the Tuthill Sales Co., Kansas City and St. Louis, Mo.



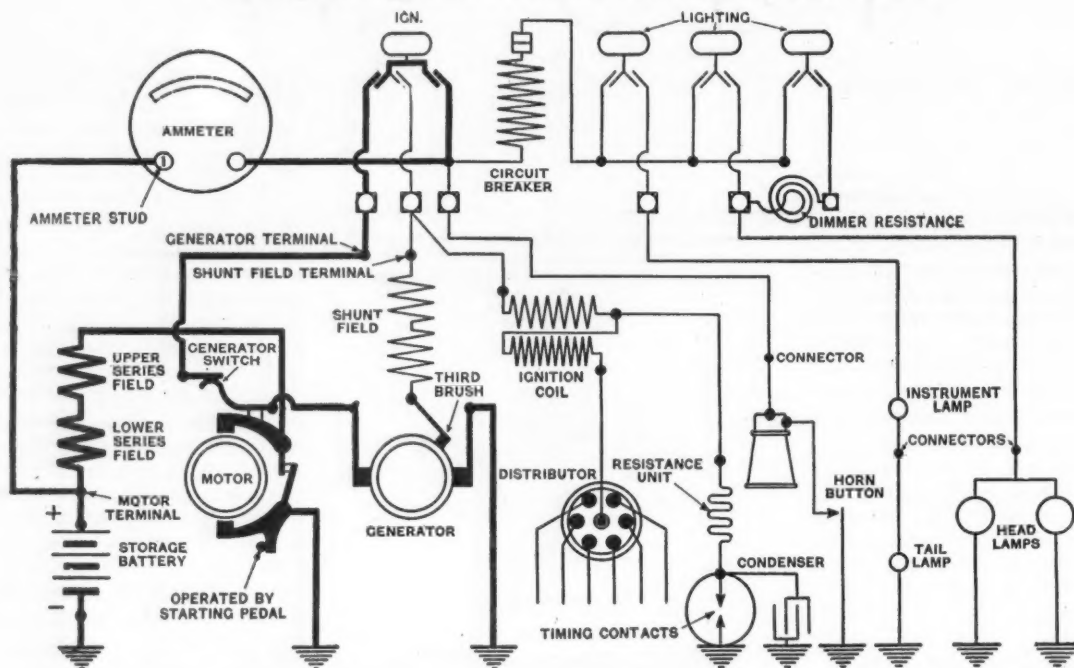
Offset wrench



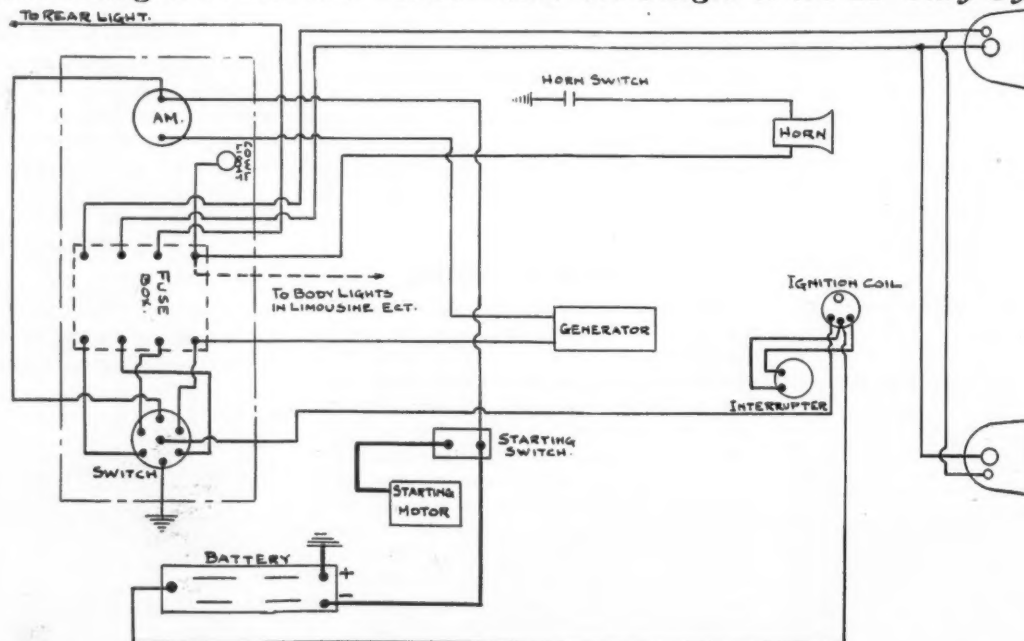
Valve facing tool

# Motor Age Weekly Wiring Chart No. 112

## Wiring Diagram Hudson 1919—Model M



## Stearns-Knight S. K. L. 4—1918—12 Volt Single Wire Remy System



### Name of Car and Date on Which Wiring Diagrams Have Appeared in Previous Issues

Allen—June 17, '20	Dodge—Sept. 23, '20	Lexington—July 29, '20	Peerless—Nov. 18, '20
Sept. 30, '20	Nov. 11, '20	Dec. 16, '20	Pierce-Arrow—July 15, '20
Apperson—Aug. 5, '20	Elcar—May 6, '20	Locomobile—June 3, '20	Reo—July 22, '20
Buick—July 15, '20	Oct. 28, '20	Mitchell—Jan. 6, '21	Roamer—Aug. 5, '20
Dec. 23, '20	Dec. 2, '20	Moline-Knight—July 22, '20	Sept. 30, '20
Cadillac—Nov. 18, '20	Franklin—June 3, '20	Nov. 4, '20	Oct. 21, '20
Case—Aug. 5, '20	Dec. 2, '20	Moon—July 29, '20	Dec. 30, '20
Oct. 7, '20	Grant—Aug. 12, '20	Aug. 19, '20	
Chalmers—June 17, '20	Nov. 25, '20	Moore—Nov. 11, '20	Saxon—Sept. 9, '20
Cole—June 10, '20	Harroun—July 15, '20	National—Dec. 16, '20	Scripps-Booth—Aug. 26, '20
Jan. 6, '21	Haynes—June 24, '20	Oldsmobile—Sept. 16, '20	Stearns—Nov. 4, '20
Crow-Elkhart—July 29, '20	Jordan—June 10, '20	Nov. 25, '20	Stephens—Sept. 16, '20
Davis—Aug. 12, '20	July 22, '20	Packard—Oct. 7, '20	Studebaker—July 1, '20
Sept. 2, '20	Kissell—Aug. 19, '20		Oct. 28, '20
Dorris—Dec. 9, '20	Oct. 21, '20		Stutz—July 8, '20
Dort—Aug. 12, '20			



# Gear Ratios of 1920 Trucks

## Motor Age Maintenance Data Sheet No. 132

One of a series of weekly pages of information  
valuable to service men and dealers—save this page

Trade Name	Model	Capacity	1st Speed	2nd Speed	3rd Speed	4th Speed	Reverse	Rear Axle Ratio
<i>Concluded from last week.</i>								
White Hickory.....	E	1	3.	1.7	1.	....	3.5	6.5
White Hickory.....	H	1½	3.	1.7	1.	....	3.5	8.75
White Hickory.....	K	2½	4.8	3.	1.6	1.	6.5	8.5
Wichita.....	K	1	5.02	3.68	1.86	1.	4.66	7.8
Wichita.....	L	1½	5.02	3.68	1.86	1.	4.66	8.66
Wichita.....	M	2	5.02	3.68	1.86	1.	4.66	8.66
Wichita.....	R	2½	5.02	3.68	1.86	1.	4.66	8.75
Wichita.....	O	3½	5.02	3.68	1.86	1.	4.66	11.75
Wilcox Trux.....	AA	1	3.33	1.68	1.	....	4.35	7.75
Wilson.....	....	1½	4.	2.62	1.5	1.	4.81	....
Wilson.....	....	2½	4.	2.62	1.5	1.	4.81	....
Wilson.....	....	3½	4.	2.62	1.5	1.	4.81	....
Wilson.....	....	5	4.	2.62	1.5	1.	4.81	....
Winther.....	751	¾-1	3.24	1.6	1.	....	4.05	6.6
Winther.....	39	1½	3.	1.7	1.	....	3.7	7.00
Winther.....	49	2	4.	2.62	1.50	1.	4.81	8.00
Winther.....	70	3½	4.	2.62	1.50	1.	4.81	9.00
Winther.....	109	5	4.84	2.84	1.50	1.	5.81	11.00
Winther.....	140	7	4.84	2.84	1.50	1.	5.81	11.00
Winther Marvin.....	430	1½	4.	1.7	1.	....	3.7	7.00
Winther Marvin.....	450	2½	4.	1.7	1.	....	3.7	9.00
Witt Will.....	50	2½	4.84	2.84	1.76	1.	5.81	7.25
Wolverine.....	C	1½	4.	1.7	1.	....	3.5	7.70

## Radiators on 1920 Cars

To be concluded next week

Name and Model	Radiator Make	Radiator Type	Water Circulation System	Name and Model	Radiator Make	Radiator Type	Water Circulation System
Allen, 43.....	Mayo	Cellular	Thermo	Cadillac, 59.....	Own	Tubular	Pump
American, C60.....	Livingston	Cellular	.....	Cameron, 6-35.....	Air Cooled	.....	.....
American Beauty.....	Fedders	Honeycomb	Pump	Case, V.....	Own	Tubular	Pump
Anderson, S34.....	Fedders	Honeycomb	Pump	Chalmers, 35B & C.....	.....	Cellular	Thermo
Apperson, 820S & 820A.....	Perfex	Cellular	Thermo	Chandler, 27.....	Harrison	Cellular	Pump
Auburn, 6-39.....	Jamestown	Cellular	Pump	Chevrolet, FB.....	Harrison	Cellular	Pump
Beggs, 20T & 21T.....	National	Honeycomb	.....	Cleveland, 40.....	Marlin	Honeycomb	Pump
Bour-Davis, 21.....	Eureka	Cellular	Pump		Rockwell		
Brewster.....	Eng. & Mer-sick	Cellular	Pump	Cole, Aero 8-870.....	McCord	Honeycomb	Pump
Bricoe, 4-34.....	Sparton	Honeycomb	Thermo	Climber, S.....	Sparks+W	Honeycomb	.....
Buick, 1920.....	Own	Cellular	Pump	Columbia Six.....	Harrison	Honeycomb	Pump
Buick, 1920.....	Own	Cellular	Pump	Commonwealth, 45...	Candler	Honeycomb	Thermo

Abbreviations: M.-R Marlin Rockwell; S. & W., Sparks-Withington; S. & J., Shotwell & Johnson.

# The Automotive Repair Shop

## Practical Maintenance Hints

### Average Setting for Timing an Engine

MANY who are connected with a service station are of the opinion that motor car engines cannot be timed unless the exact timing for that particular engine is known. While this is true to a certain extent, it does not hold good throughout, as the engine can be set at an average setting and will run, giving good service. Of course, if the exact setting of the valves is known, it is much better to set accordingly, rather than depend upon a rule of thumb.

It is rather the exception for a service station to have an exact time setting for all engines, so we have calculated an average setting that will give satisfactory results for all engines, unless the engine is freakishly different from the rest, and the chances are exactly 114 to 1 that the setting will be right rather than wrong.

The pitch of the timing gears is generally coarse enough to allow of only one proper setting, and when the proper position is almost reached the tooth of the camshaft gear which should mesh between the two teeth on the crankshaft gear, will be so close that less than the width of one tooth will be between that and the exact position.

This approximate position of the timing gears with reference to one another, determined by the average setting for 114 cars, is as follows: intake opens 9.5 deg. late and closes 37 deg. late. The exhaust valve opens 50 deg. and closes 9 deg. late. It is not necessary to pay attention to more than one of these dimensions when setting the camshaft, for the cams are generally all on the same shaft and integral with it, so that the relation between the different cams is constant. From this it follows that if one position is determined, the rest of the dimensions given will follow in their natural order.

#### CORRECT METHOD FOR SETTING BATTERY IGNITION TIMING

Most battery ignition systems are timed in the retard position so that the breakers open about  $\frac{3}{4}$  in. of flywheel travel past upper top center. If the ignition head is equipped with automatic advance the timing must necessarily be very accurate, and it is next to impossible to do this by watching the opening of the breaker points by eye. It is well known that this is not an accurate method and is not as fast a method as the following.

One of the best known methods to obtain accurate timing of the ignition is to place a 6-volt lamp in the low volt lamp and equip it with a pair of short terminals and a pair of snap

connectors. Now pull off the positive wire on the ignition head coming up from the battery and connect one lamp terminal to the battery wire and the other to the terminal on the ignition

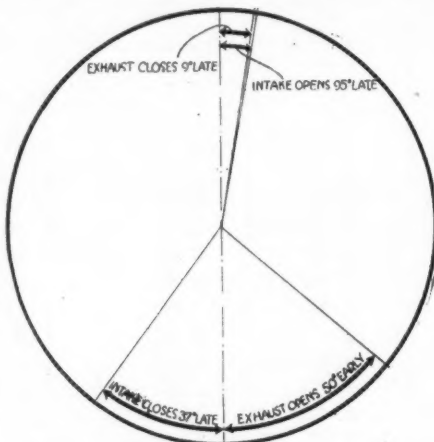


Diagram for use when exact timing is unknown

tension of breaker circuit. Take a 6-volt lamp and equip it with a pair of short terminals and a pair of snap connectors. Now pull off the positive wire on the ignition head coming up from the battery and connect one lamp terminal to the battery wire and the other to the terminal on the ignition head.

When the engine is turned over and the breakers close the lamp will light. But the timing must be set so the breakers will just open when the igni-

tion timing mark on the flywheel coincides with the center line marker on the flywheel housing. To obtain the correct setting, set the ignition head so the light will go out, indicating that the breakers have just opened, when the flywheel mark and the center line mark on the housing coincide.

### Lathe-Centering Gage

WHEN the alignment of a lathe has been disturbed or purposely altered for cutting a taper on a shaft or a spindle, it is quite a job to line up the tail stock of the lathe with the headstock before parallel cuts can be taken again. The illustration shows a tool that very easily can be made by anyone familiar with lathe work.

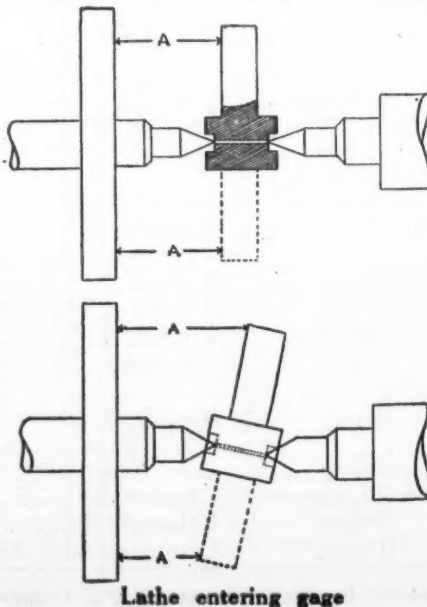
A hub can be made from a piece of round stock about 2 in. in diameter. Through the center of this a hole should be drilled, not more than  $\frac{1}{8}$  or  $\frac{5}{32}$  in. in diameter. A handle about 8 in. long can be fitted to this. The handle can be made from round stock about  $\frac{3}{4}$  in. in diameter. It can be threaded on one end and fitted to a tapped hole in the side of the hub. The handle must be at right angles with the hub so that measurements can be taken from either side of the gage when it is fitted to the centers of the lathe. The hub of the gage can be counterbored as shown, although this is not necessary.

To use the gage move the tailstock up the headstock and then place the hub of the gage between the lathe centers. If the distance between the handle and the face plate on the lathe is the same on one side as it is when revolved 180 deg., then the lathe is centered. If the lathe is not on center, then the gage will appear somewhat as the exaggerated sketch appears.

### Put On Truck Drive Chains

To place chain on drive sprockets of a truck most mechanics having no chain puller use a small bar or rod inserted through the chain and against sprocket to tighten the chain enough to get the connecting link together. This way usually takes about four hands.

A better way is to put a good sized block behind the wheel and then put the engine in reverse gear with the switch off to prevent the engine from starting. Turn engine until the chain is tight and then put in connecting link. If the engine is on the compression stroke by the time chain is tight and will not stay without rocking back, leave the crank inserted in ratchet and tie it over to frame with a piece of cord.—Wm. A. Malm, 3025 Ave. S, Minneapolis.



Lathe centering gage



# Law in Your Business

By Wellington Gustin



## Garageman Liable for Freezing of Stored Car

*Agreed to Supply Heat—Must Use Due Care for Safety of Car Regardless of Contract—Customer Sues for Damages Resulting*

A RECENT decision of the Supreme Court of New Jersey involves the responsibility of the garage keeper for damages resulting from the freezing of water in a car stored with him. Here the court says a garage keeper is liable, especially where he expressly agrees to maintain sufficient heat in the garage to prevent freezing. (*Bussy vs. Hatch*, 111 Atl. 546.)

The customer sued for damages arising out of the failure of the garageman, Hatch, to properly care for his automobile, which the customer had stored at the garage under an agreement of bailment. In this case the customer claimed the automobile was stored upon Hatch's express promise to furnish sufficient heat to keep the machine from freezing; that on more than one occasion he called at the garage, inquiring regarding the supply of the heat, and was assured by Hatch that the necessary heat was being supplied; that in the following month of March he called to take the machine out, and found that the water jacket had cracked, owing to an insufficient supply of heat, resulting in the damage for which suit was brought.

The trial court found these claims to be facts, which presented an express simple contract whereby the garage was required to furnish sufficient heat to prevent freezing.

The court pointed out that the basic principle of law in this case was stated in another case (73 ATL 73) where the same court held that—

"Where defendant, as a warehouseman, took plaintiff's goods to store, and kept them for two days and two nights in its stable upon a wagon, and where fire consumed them, the question was one of fact whether the defendant bestowed upon the goods thus stored the care required by law."

In all such cases resulting in loss or damage to a car in storage the law requires that the garage keeper shall have

exercised due care to prevent the loss. However, in this case there was the additional agreement to supply a reasonable sufficiency of heat to prevent freezing.

In such a case where there is an agreement between the parties as to the heat

necessary to keep the water in the radiator from freezing, the draining of the water jacket, or the failure to drain it could not affect the question of defendant's liability for failure to supply the necessary amount of heat under the agreement, said the court.

### Tell Us Your Legal Problems

SEEMINGLY knotty legal problems are constantly arising in the dealer's business, which even a slight knowledge of the law easily may solve. *MOTOR AGE* presents here the most common legal problems which confront the dealer. Mr. Gustin, a member of the Chicago bar, not only is well versed in the law relating to the dealer, but presents it in such a way as to be readily understood by the layman. In addition to his articles, Mr. Gustin will gladly answer such individual inquiries on knotty points as may be submitted to him.

contended that her driver was negligent, driving at a high and reckless rate of speed, and therefore, his negligence could be imputed to the occupant and no recovery had on the grounds of contributory negligence.

The defense contended that the relationship between the plaintiff occupant and the driver of the car, who was a brother-in-law was such as to make the occupant responsible for the negligent act of the driver; that is, that the driver was the agent of the occupant and that if he were not her agent he was negligent in the handling of the machine, and that she, the occupant knowing of this negligence, continued to ride with him.

The facts showed that on the night of the accident the occupant was riding in the car which belonged to her brother-in-law, whom she had requested to convey her, as a matter of friendly accommodation to a nearby store. She exercised no control over the machine other than to name the place where she desired to go. The Court of Appeals of California was of the opinion that the negligence of the driver was not imputable to her.

Again the court said on the question of the occupant's knowledge of the reckless driving, that before the occupant could be held guilty of contributory negligence, it must be shown that prior to the time the wheels of the machine were caught on the gutter and the accident occurred the driver had been traveling at a reckless rate of speed and that such occupant had time and opportunity to protest or get out of the automobile and did not do so.

### Driver's Negligence Not Imputed to Guest

#### Facts Showing Driver Not Under Control of Occupant

IN a recent California case the court had presented to it the question of the contributory negligence of an injured occupant in an automobile accident. The passenger was injured when the car was overturned by running into a gutter along defendant's railroad track. It was

# From the Four Winds

## Glimpses at the World of Motordom

### Business Notes

The Black & Decker Mfg. Co. has declared a 2 per cent dividend on the common stock to all stockholders of record as of Dec. 30, 1920, which, in view of the fact that dividends approximately equivalent to 5 per cent on the present outstanding common stock were paid during the early part of the year, brings the total common stock dividends for the year up around 7 per cent.

Roland LeBarre of the Interstate Iron & Steel Co. of Chicago has been appointed chairman of the creditors committee which is in charge of the affairs of the Obenberger Forge Co., Milwaukee. An effort will be made to work out a plan under which all creditors will be paid in full and the company can be kept in operation. The assets exceed \$1,000,000 and the liabilities are approximately \$800,000.

The board of directors of the General Motors Corp. has been increased to thirty-one members by the election of K. W. Zimmerschied, C. F. Kettering and F. D. Brown. Both Mr. Brown and Mr. Zimmerschied have been elected vice presidents of the company, the first named to have charge of finances under the chairman of the finance committee. L. R. Beardsley has been elected an assistant secretary.

The G. F. H. Corp. of Worcester, Mass., a new \$252,000 Massachusetts corporation, has taken over the business of the Charles B. Foster Co., motor truck developers and will transfer it to Denver.

The Connecticut Telephone & Electric Co., of Meriden, Conn., has been granted final decree against Milwood & Brackett Co. Inc., of Des Moines, in the matter of patent infringements. This suit was the first action brought by these manufacturers against a jobbing concern, to prevent the distribution of ignition repair parts. A substantial cash settlement for damages have been granted by the court. The decree was handed down by Judge Martin J. Wade in the United States district court of Iowa.

The Seymour Laboratories Units, Inc., is the new corporate style adopted by the W. E. Seymour Manufacturing Co. of Milwaukee, which was organized several months ago with \$250,000 capital to manufacture piston rings and other automotive parts and specialties. The head of the company is Walter E. Seymour, formerly vice-president and general manager of the A. O. Smith Co., Milwaukee, and previously works manager of the Fairbanks, Morse & Co., Beloit, Wis.

The Templar Motor Co.'s financial condition has been improved immeasurably with the last ninety days by the settlement of the company's claim for war work against the United States government for approximately \$650,000.

The Rivett Lathe & Grinder Co., of Boston, has announced new prices which show a range of reductions from 20 to 43 per cent as compared with peak prices.

The Ohio State Rubber Tire Co., of Port Clinton, Ohio, has elected the following officers: A. Schroeder, Cleveland, president; J. F. Langenau, Cleveland, vice president; Harmon Hankammer, Port Clinton, secretary. The following constitute the board of directors: W. S. Lee, Bellevue; E. P. Reichert and S. E. Gerner, Port Clinton; and Messrs. Schroeder and Langenau.

A charter has been granted to the U. S. Spring Corp., of Milwaukee, which has been organized with a capital stock of \$25,000 to engage in the manufacture of iron and steel products and implements of mechanical and agricultural use.

The Gehl Mfg. Co., West Bend, Wis., maker of gas engines and ensilage cutters, resumed production during the week after being partly closed down to facilitate extensive improvements. A new gray iron furnace has been installed, with an electric ladle crane, and the machine shop has been rearranged to accommodate additional equipment.

The Latex Tire & Rubber Co. of Fond du Lac, Wis., has broken ground for a 2-story factory addition, 60x80 feet, which will cost about \$45,000 equipped. The present plant was erected less than nine months ago and has been crowded beyond its capacity since operations began last June.

## COMING MOTOR EVENTS

### Automobile Shows

Ardmore, Okla.	Annual Automobile Show	January
Pontiac, Mich.	Annual Automobile Show	January
New York	National Passenger Car Show	Jan. 8-15
Portland, Ore.	Automobile Show	Jan. 10-15
Philadelphia	Automobile Show	Jan. 15-22
San Antonio, Tex.	Automobile, Truck and Tractor Show	Jan. 15-23
Milwaukee	Annual Winter Show	Jan. 17-23
Oklahoma City	Automobile Show	Jan. 17-22
Kalamazoo	Automobile Show	Jan. 18-22
San Francisco	Automotive Equipment Exposition	Jan. 22-27
Baltimore	Annual Automobile Show	Jan. 22-29
Holyoke, Mass.	Annual Automobile Show	Jan. 22-29
Cleveland	Annual Automobile Show	Jan. 22-29
Montreal	Nat'l Motor Show of Eastern Canada	Jan. 22-29
Amsterdam, N. Y.	Annual Automobile Show	Jan. 23-29
Columbus	Automobile Show	Jan. 24-29
Lawrence, Mass.	First Annual Show	Jan. 24-29
New Bedford, Mass.	Automobile Show	Jan. 25-29
Chicago	Automobile Salon	Jan. 29
York, Pa.	Annual Automobile Show	Jan. 29-Feb. 6
Chicago	National Passenger Car Show	Jan. 29-Feb. 5
Allentown, Pa.	Annual Automobile Show	Jan. 29-Feb. 12
Lehigh, Pa.	Annual Automobile Show	Jan. 29-Feb. 12
Hudson, N. Y.	Annual Automobile Show	Jan. 30-Feb. 5
Oakland, Calif.	Automobile Show	Jan. 31-Feb. 6
London, Ont.	Nat'l Motor Show of Western Ontario	Jan. 31-Feb. 5
Madison, Wis.	Annual Automobile Show	February
Erie, Pa.	Annual Automobile Show	February
Roanoke, Va.	Annual Automobile Show	February
Paterson, N. J.	Annual Automobile Show	February
Amarillo, Texas	Annual Automobile Show	February
Bucyrus, Ohio	Annual Automobile Show	Feb. 2-5
Tampa, Fla.	Annual Automobile Show	Feb. 3-12
Minneapolis	Annual Automobile Show	Feb. 5-12
Newberg, N. Y.	Annual Automobile Show	Feb. 6-12
Bridgeport, Conn.	Annual Automobile Show	Feb. 7-12
Rochester, N. Y.	Automobile Show	Feb. 7-12
Reading, Pa.	Automobile Show	Feb. 7-12
Yonkers, N. Y.	Automobile Show	Feb. 7-12
Tulsa, Okla.	Annual Automobile Show	Feb. 7-12
Bucyrus, Ohio	Crawford County Automobile Show	Feb. 9-12
Hartford, Conn.	Annual Automobile Show	Feb. 12-19
Kansas City, Mo.	Annual Automobile Show	Feb. 12-19
Fitchburg, Mass.	Automobile Show	Feb. 12-19
St. Louis	Annual Automobile Show	Feb. 14-19
Winnipeg	Western Can. Automotive Equip. Show	Feb. 14-19
Trenton, N. J.	Annual Automobile Show	Feb. 16-19
Ottawa, Ill.	Automobile, Truck and Tractor Show	Feb. 17-19
San Bernardino, Cal.	Annual Automobile Show	Feb. 18-28
Albany, N. Y.	Annual Automobile Show	Feb. 19-26
San Francisco	Automobile Show	Feb. 19-26
Pittsfield, Mass.	Annual Automobile Show	Feb. 20-26
Grand Rapids, Mich.	Automobile Business Association	Feb. 21-28

Louisville, Ky.	Automobile Show	Feb. 21-26
Deadwood, S. D.	Annual Automobile Show	Feb. 21-26
Salt Lake City	Automobile Show	Feb. 21-26
Galesburg, Ill.	Annual Automobile Show	Feb. 22-26
Binghamton, N. Y.	Annual Automobile Show	Feb. 22-26
Malone, N. Y.	Annual Automobile Show	Feb. 23-26
Clinton, Iowa	Sixth Annual Automobile Show	Feb. 23-26
Newton, Kan.	Annual Automobile Show	Feb. 23-26
Buffalo, N. Y.	Annual Automobile Show	Feb. 26-Mar. 5
Paterson, N. J.	Annual Automobile Show	March
Columbia, S. C.	Annual Automobile Show	March
Schenectady, N. Y.	Automobile Show	March
Wilmington, Del.	Automobile Show	March 1-5
Wichita, Kan.	Annual Automobile Show	March 1-5
Des Moines	Open Car Show	March 2-5
Atlanta	Automobile Show	March 5-12
Des Moines	Closed Car Show	March 7-10
St. Joseph, Mo.	Automobile Show	Feb. 28-Mar. 5
Brooklyn	Automobile Show	March 5-12
Springfield, Mass.	Annual Automobile Show	March 7-12
Scranton, Pa.	Passenger Car Show	March 7-12
Syracuse, N. Y.	Annual Automobile Show	March 7-12
Indianapolis	Automobile Show	March 7-12
Newark, N. J.	Automobile Show	March 12-19
Boston, Mass.	Annual Show	March 12-19
Omaha, Neb.	Annual Automobile Show	March 14-19
Greenville, S. C.	Automobile Show	March 16-19
Torrington, Conn.	Annual Automobile Show	March 20-26
Chattanooga, Tenn.	Annual Automobile Show	April
Gloversville, N. Y.	Annual Automobile Show	April 3-9
Seattle	Automobile Show	April 4-9
Buffalo	First Annual Motors and Sportsmen's Show	Apr. 11-16

### Tractor Shows

Columbus, Ohio	National Tractor Show	Feb. 7-12
Scranton, Pa.	Truck & Tractor Show	March 14-17

### Foreign Shows

Delhi, India	Delhi Motor Car Show	Feb. 7
Strasbourg	French Grand Prix	July 23

### Conventions

New York	Society of Automotive Engineers	Jan. 11-13
Milwaukee	Wisconsin Automotive Dealers' Assn.	Jan. 19
Chicago	N. A. D. A. Annual Meeting	Jan. 31-Feb. 1
Chicago	Automotive Elec. Service. Assn.	Feb. 2-4

### Races

Indianapolis Sp'wy	500 Mile Race	May 30
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